Electrical World

UNIVERSITY OF CALIFORNIA
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WASHINGTON AWARD WINNER — Andrey A. Potter, dean of engineering at Purdue University, who received the Washington Award for 1943 this week for "distinguished leadership in engineering education and research, and patriotic service in mobilizing technical knowledge for victory in war and peace"

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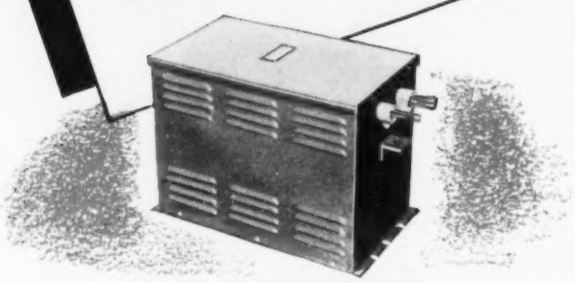
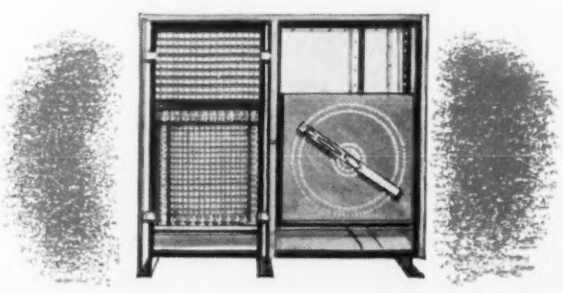
ELECTRICAL IDEAS IN ACTION

...helping to meet AMERICA'S WARTIME NEEDS

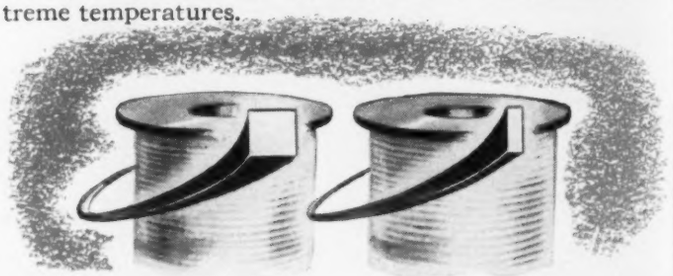


IMPROVED PERFORMANCE of many electronic devices and radio equipment can be obtained by using this new G-E stabilizer to "straighten out" voltage variations in the power supply. It holds voltage constant within close limits despite variations in load, load power factor, or both, over an input range from 95 to 130 volts. It is built in ratings from 50 va to 5000 va. Bulletin GEA-3634 gives details.



PRODUCTION OF BUTADIENE and high-octane gasoline is simplified, and chances of the operations "going wrong" are reduced by a time-cycle and valve-operator control developed by General Electric. By means of a motor-driven cycle timer and auxiliary relays, a large number of valves can be opened and closed in a given sequence. When necessary, this sequence can be easily rearranged. The unit shown here has 360 separate "control points," but as many as 900 points can be provided for even more complicated operating cycles.

A POUND OF ALUMINUM IS SAVED every time one of these plastic trench-mortar fuses is turned out, and they are now being made in volume by General Electric. Use of a plastic in place of aluminum was made possible by improving both the material and the molding technique, so that dimensions are held within narrow limits, even when the fuse mechanism encounters extreme temperatures.



THE MORE COMPACT WINDINGS made possible by using square or rectangular wire can now have the tough, long-lasting insulation of Formex wire as well. Square and rectangular shapes of Formex magnet wire are now in use by General Electric—in a wide range of standard sizes. A unique method of applying the insulation assures uniform thickness, just as on round Formex wire.

YOUR ENGINEERS serving industry and other users of electric energy have an important war job to do in helping to make the most of our power resources. Electrical ideas such as these, though sometimes minor in themselves, can add up BIG when widely applied—frequently saving energy, man power, and critical materials. General Electric is ready to assist in the cause of conservation by supplying further information or application aid wherever better electrical utilization can help to win the war. *General Electric Company, Schenectady, New York.*

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Electrical World

NEWS ISSUE

Volume 119, Number 9 February 27, 1943

Bill Asks Sale of Coulee, Bonneville to States

"Home rule" of federal power projects is aim of legislation, introduced by Rep. Fred Norman, Washington Republican — Issue may loom large in 1944 presidential race

Home rule of federal power developments on the Columbia River is the aim of recently proposed legislation empowering the states of Washington and Oregon to purchase the Grand Coulee and Bonneville projects.

Second Step in Campaign

The bill, introduced by Rep. Fred Norman, Washington Republican, requires the federal government to sell both projects, Grand Coulee to Washington and Bonneville to Washington and Oregon jointly, whenever the states complete satisfactory financing arrangements. It constitutes the second step of a "double-envelopment" campaign to make public power—operated under home rule—supreme in Washington State.

Under the act the federal government would be paid net cost of the projects at the time of acquisition, less depreciation reserves. Financing would be by revenue bonds backed by project income, in cash or by a combination of both. Estimated cost of each project now is $160,000,000.

Last previous step in establishing supremacy of public power in Washington was the recent passage of "Initiative 12" by the Washington Legislature. Under the initiative two or more public utility districts may combine to purchase private systems covering the areas they serve. This opens the way for abolishment of all remaining private electric power companies.

Norman, who regards his measure as the capstone of the home rule program, described it as "the final step toward complete home rule by the people of my state over their hydroelectric resources." If it becomes law, Norman predicted, it will probably result in a combination of public utility districts or a state public power authority to take over and operate both projects.

"There is little doubt in the minds of well-informed persons that the Bonneville and Grand Coulee projects will pay out," Norman declared. He pointed out that Bonneville Administrator Paul Raver estimates that annual revenues of both projects will reach $18,000,000 by July. At that time both projects will be producing approximately 8,000,000 kw.-hr. of energy yearly, most of it sold to direct war industries. Post-war industrial expansion which will be enabled by this power supply and by the area's natural resources will allow the projects to pay for themselves, Norman believes.

HANDSHAKE—During a recent tour of inspection of one of General Electric's eastern works, Lieut.-Gen. William E. Knudsen had a hearty handshake for Dr. Sanford A. Moss, inventor of the turbo-supercharger

Ickes Opposition Foreseen

Possibility that a New Deal Congress would pass the bill, or that President Roosevelt would sign it, is remote. Its introduction, however, puts the Republicans on record as favoring home rule, an issue which may be important in 1944 elections. Norman and his "freshman" colleagues, each of whom beat a Democratic representative last fall, are already on record as favoring public over private power as a result of their indorsement of Initiative 12. Thus, it may be that Norman is working toward the possibility that a popular record at home may help elect a Republican president in 1944. Since a Republican administration then would probably introduce a trend toward federal decentralization, possibilities of such legislation becoming law would be improved.

Interior Department's Reclamation Bureau is almost certain to oppose the Norman bill. Ickes-sponsored legisla-

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tion to create a Columbia River Authority, controlled by the Interior Department, will be introduced at a future date. At present Sen. Homer T. Bone, Washington Democrat who was co-sponsor of similar legislation last session, is in Puerto Rico serving with a Congressional committee investigating economic conditions of that island.

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Pass Public Power Bill in Washington

Initiative 12, the public power measure which permits Public Utility Districts to form joint commissions to construct, purchase or condemn outright privately managed electric utility properties in the state of Washington, passed both houses of the state Legislature recently. Immediate action under the measure may be forestalled, however, by a resolution, now under consideration, to put the question to the vote of the people at the next general election in November, 1944. If the resolution fails of passage, submission of a petition with at least 50,000 names will bring the measure to a general vote.

Prior to the passage of Initiative 12, over which controversy has raged for months, PUD's have been restricted to the acquisition of electric properties serving the territory in which the PUD was located. Piecemeal condemnation proceedings was the result, with severance damages accompanying the proceedings. Under the new law any group of PUDs can combine and set up a commission to buy utility properties in any part of the state. Chief companies affected by the new public power bill are the Puget Sound Power & Light Co., an Engineers Public Service Co. subsidiary; Washington Water Power Co. and Pacific Power & Light Co.—both units of American Power & Light Co., an Electric Bond & Share Co. sub-holding unit.

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Wisconsin Generator Goes Into Operation

The new 30,000-kw. turbo-generator that brings the capacity of the Bayside generating station to 50,000 kw. was put into operation by engineers of the Wisconsin Public Service Corp., Green Bay, on January 26. The unit operates on steam at a pressure of 675 lb. psi. and temperature of 900 deg. The related boiler is pulverized fuel fired and has a steaming capacity of about 312,000 lb. per hour.

Utility Commissioners to Fight for State's Rights

National Association of Railroad and Utilities Commissioners vote to intervene in FPC's investigation of rates charged by Arkansas utility to Lake Catherine aluminum plant

The executive committee of the National Association of Railroad and Utilities Commissioners voted this week to intervene in the Federal Power Commission's investigation of the Southwestern power pool case on the issue of states' rights.

Formal Brief Prepared

A formal *amicus curiæ* brief is being prepared by the association's solicitor, John E. Benton, for filing with the FPC on or before April 9, date now fixed for submission of initial briefs in the case. The action brings into sharp accent the developing issue of federal vs. states' rights originally raised by the Arkansas Department of Public Utilities, which charged that FPC is overstepping its authority in attempting to regulate an intrastate rate—that between Arkansas Power & Light Co. and the government's Lake Catherine aluminum plant.

The association's action was decided in a poll of executive committee members by President Frank W. Matson, chairman of the Minnesota commission. Actual vote was not announced by secretary Ben Smart, but the majority was understood to have been decisive.

Prior to the association's action, several individual state commissions had responded to Arkansas' appeal for united support of other state regulatory agencies in this issue. The Wisconsin Public Service Commission, in a letter to Chairman Joe W. Kimzey of Arkansas, commended the latter's position and asked what assistance it could render. Mississippi, without regulatory authority of its own, wrote that it is concerned in the question of protecting states' rights in regulating matters clearly intrastate, and believes Mr. Lasley's (Attorney P. A. Lasley of the Arkansas Commission) presentation is a clear-cut outline of the position all state regulatory authorities should take. New Jersey and Missouri commissions also sent word that they were considering action.

FPC instituted its investigation of the Lake Catherine contract on its own motion, under the Federal Power Act and the President's directive of last October instructing FPC to see that the government obtained the "cheapest" power available for war operations.

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Defer Georgia Hearing

Announcement has been made by the Federal Power Commission that the date previously set for reconvening hearing on the Georgia Power Co.'s declaration of intention to complete construction of its Furman Shoals hydro-electric project on the Oconee River in Georgia has been changed from March 1 to April 8.

TRANSMISSION TOWER DOWN—When a flood-swollen creek changed its course near Colton, Calif., a Southern California Edison Co. transmission tower carrying two 66-kv. lines and one 33-kv. line fell into the newly cut stream bed, as did an 11-kv. distribution pole

Committee Clears Surplus Inventories

West Coast utility plan speeds exchanges

Interchange of surplus inventories under WPB's revised Order P-46 has resulted in the establishment, by the newly organized Electric Utilities Surplus Commodity Committee, of a regional office in Los Angeles for WPB Region 22, which includes California, Arizona and Nevada. The regional office was opened January 1 in the Southern California Edison Co. building, with W. J. McCullough, for many years Edison storekeeper, as coordinator.

Surplus inventories are sent to the regional office by utilities in the three states. When a company needs to purchase material or equipment, it inquires at the regional office. Coordinator McCullough determines who has the desired commodity and arranges the contact between buyer and seller. The sale is made directly between the two parties, with a copy of the purchase order sent to the committee's regional office so that the withdrawal may be recorded.

Cost of operation of the committee is borne by 17 of the larger utilities, assessments being made in proportion to gross income. Other utilities in the region with relatively small operating revenue are not being asked at the present time to contribute to the support of the committee. The committee works in close co-operation with the WPB, which eventually will assume the duties now being carried on.

Chairman of the committee is E. F. Watkins, manager of purchases, Southern California Edison. Permanent members are V. E. Jones, California Electric Power; W. R. Foster, Los Angeles Department of Water & Power; W. J. Lainson, San Diego Gas & Electric Co.; Fred P. Hanson, Pacific Gas & Electric Co.; Milton G. Sanders, Central Arizona Light & Power, and Allen B. Curtis, Sierra Pacific Power.

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Tri-City, K-U Given Time Extensions by SEC

The Securities and Exchange Commission has granted the applications of the Tri-City Utilities Co., successor to Kentucky-Tennessee Light & Power Co., and Kentucky Utilities Co., to extend until April 17, the time in which they may conclude sales and exchanges of certain utility properties.

The commission granted the original application on Aug. 17, 1942.

48-Hour Work Week Raises Number of Questions

Until March 31 employers cannot hire new workers until they have shifted to new time basis, or prior to that date dismiss workers made unnecessary by longer working hours

Application of the President's 48-hour work-week executive order by the War Manpower Commission will hinge primarily upon two tests: Will going to a 48-hour minimum in a particular plant release workers for war jobs or reduce new hiring requirements, or will it increase production.

Work Areas Limited

WMC's developing policies and procedures for administration of the order make it plain that it does not live up to its original billing of putting the entire nation on a minimum 48 hours of work each week. For instance, the terms of the order apply on a fixed basis only in the 32 areas which have been designated because of a labor shortage. Another 100 or so areas will be named soon, and probably others later, but it is not WMC's intention ever to invoke the edict nationally.

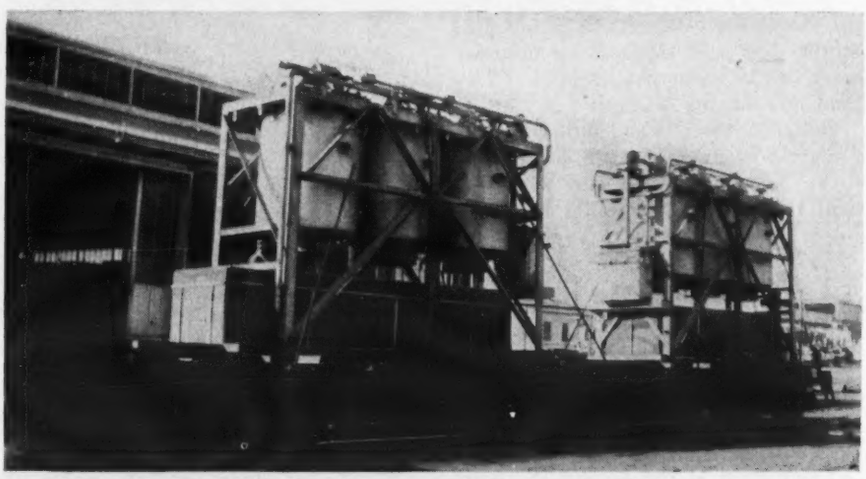
Within the designated areas all employers come under the order, except those categories specifically exempted by WMC, such as employers of domestics. Until March 31, in these areas, employers are forbidden to recruit additional workers until they have shifted operations to the 48-hour basis. In making the shift, however, they also are forbidden to dismiss prior to March 31 workers made unnecessary by the increased hours. By March 31 employers are to report to their local WMC director what workers are to be released or how much longer they need to attain the 48-hour week by absorption of employees into expanding operations or as replacements of workers leaving.

At that time, also, employers unable to comply with the order or those in plants where application of the longer hours would neither release workers nor increase production may apply for exemption. All enforcement of the order is to be at the local WMC level.

Voluntary Shifts Anticipated

Outside the designated areas, WMC expects employers to shift to a 48-hour week voluntarily, "but only if going to 48 hours would result in more effective use of employees, or if it would avert employment of additional employees," according to an official WMC statement. In other words, as the draft and resignations deplete a plant's working force, the management is expected to "make do" with less employees working longer hours.

Time-and-one-half pay applies to hours over 40 worked in plants where the Wage-Hour Act applies, which would include most utilities. Outside the scope of this act, union contract provisions or the competitive exigencies are the determining factors.



SURPLUS CIRCUIT BREAKERS—Sale of two 73-kv. oil circuit breakers by the Southern California Edison Co. to the Public Service Co. of Northern Illinois was arranged by the Electric Utilities Surplus Commodity Committee of WPB Region 22. Note excellent crating of the circuit breakers for shipment

World's Record Broken on Douglas Dam Construction

TVA's 100,000-kw. hydro and water storage project finished Feb. 21, twelve months, three weeks from start — Cherokee designs and construction crews used to cut building time to catch spring rains

Douglas Dam, the Tennessee Valley Authority's hydro-electric and water storage development on the French Broad River, was closed on February 21, twelve months and three weeks after construction started. The job set a new world's record for a major power dam construction, breaking by more than four months the previous TVA feat of building Cherokee Dam on the Holston River in 16 months in 1940-41.

Ceremony on March 1

Formal recognition of the construction feat is scheduled for March 1—the goal in the original thirteen-month schedule—when Vice-Chairman William L. Batt of the War Production Board and TVA Chairman David Lilienthal address a mass meeting of the 6,000 Douglas workers. Individual recognition is to be accorded those employees who haven't missed a day's work during the building of the structure.

Douglas Dam, located about 30 miles above Knoxville, is 161 feet high and 1,682 feet long. It will provide useful storage capacity of 1,330,000 acre-feet in a lake which will ultimately be 43 miles long and cover 31,600 acres.

The project will add an average of 100,000 kw. to TVA's expanding power system to meet war loads. Of this, up to 60,000 kw. will be generated from the two 30,000-kw. units to be installed at the dam and the rest by improvement in the water flow through TVA's nine downstream stations.

Douglas Dam was authorized by Congress February 1, 1942, in response to appeals from WPB and the President that the energy would be "absolutely necessary for war production in 1943." The authorization was the subject of a bitter fight in Congress, which held up approval for several months, and led to the unprecedented thirteen-month construction schedule in an effort to catch the 1943 spring rains.

Cherokee Designs Adapted

Completion of the project in record time was possible, according to TVA Chief Engineer T. B. Parker, because TVA was able to transplant almost intact its construction crews and equipment from Cherokee, which was then just being completed, and because design work was cut to a minimum by adapting Cherokee designs to the similar Douglas project. First generator at Douglas, which will begin spinning some time this spring, actually was built as a spare unit for Cherokee.

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Utility Must Carry Bonneville Power

First use by the Federal Power Commission of the President's October, 1942, directive (ELECTRICAL WORLD, October 17, 1942, page 71) calling for "common carrier" transmission of electric power where it would reduce war power costs has been applied to the Washington Water Power Co.

FPC has directed Washington Water Power to deliver Bonneville Power Administration energy over the company's lines to Fort George Wright and an Army hospital at Spokane, Wash., on the ground that Bonneville's bid was "considerably" lower than that of the utility.

The order permits Washington Water Power to charge a reasonable amount for delivering Bonneville energy. This service fee is to be negotiated by the company and Bonneville, with FPC ready to fix a rate if the parties cannot agree.

Kinsey M. Robinson, president of Washington Water Power, commenting on the FPC order, declared that the utility was "ready and willing" to furnish the necessary power at an estimated annual saving to the government of $4,400. "It is apparent," he said, "that the Federal Power Commission is willing to go to any length to promote the interests of the Bonneville Power Administration and the expansion of public power in this area. . . . If the company supplied these loads it would, on the average, pay Bonneville annually $8,000 for dump energy purchasable under our present interchange contract for dump energy, which it would not buy if Bonneville supplied these loads. Also if the company supplied these loads, it would pay an income tax of $15,000 on this business, which Bonneville would not pay if it supplied them. Correcting for this payment for dump power and income tax, the government would have a saving of $4,400, exclusive of transmission charges, by purchase from the company compared to being supplied by Bonneville."

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WPB's "Brown-Out" Order Stalemated

The proposed WPB "brown-out" order—dousing for the duration all non-essential commercial display and decorative lighting and sign lighting—is stalemated for the time being.

WPB's Power Division suggested the brown-out (ELECTRICAL WORLD, December 26, 1942, page 54) as a step in WPB's announced program for stripping all "fat" off civilian living which would conserve both fuel and transportation. Because there is no need for invoking the program as a power conservation program, the Power Division submitted the suggestion to Transportation Director Eastman and Petroleum Coordinator Ickes, who also has jurisdiction over coal. Neither has enthused over the idea.

More recently, Ickes had taken the position that the Power Division should establish the brown-out as a power conservation step—a continuation of the Ickes strategy of contending that there is an impending power shortage.

There the matter stands. WPB cannot justify a brown-out to save fuel and transportation without the support of the agencies having jurisdiction in those fields. And it can't justify a brown-out for a non-existent power shortage.

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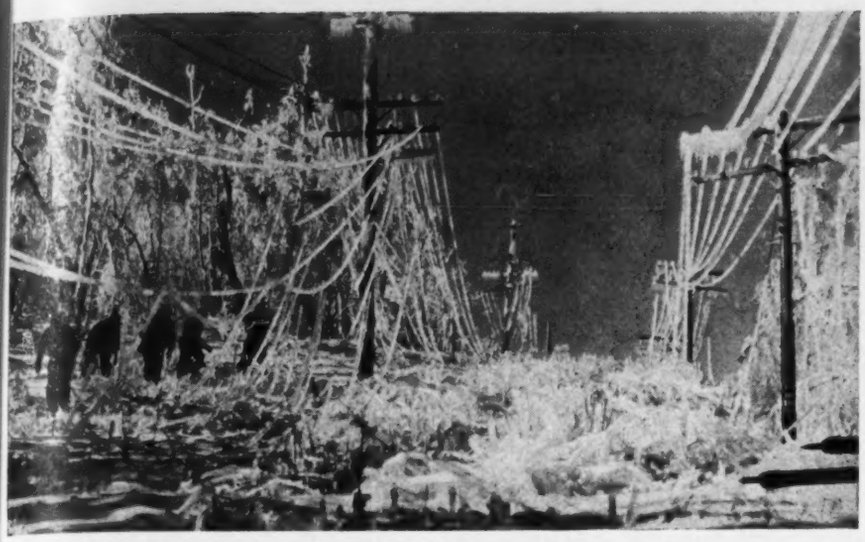
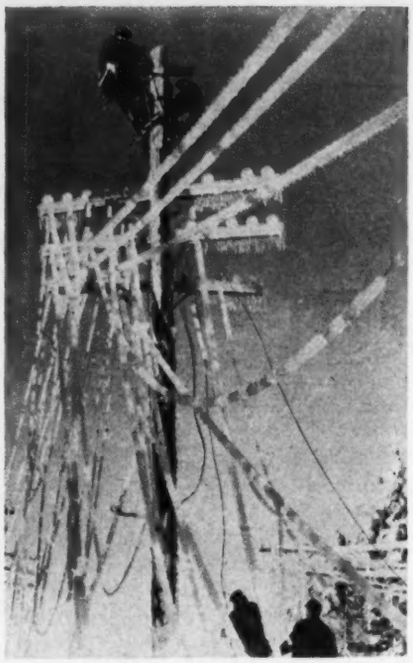
Prudent Investment Plan Advocated in Ohio

A bill to revise the system of fixing public utility rates was introduced recently in the Ohio Senate by Lawrence Kane of Cincinnati.

Under the terms of the measure the Public Utilities Commission would be authorized to use the historical cost, or prudent investment method of valuating public utilities for rate-making purposes, instead of computing the reproduction cost, less depreciation.

Senator Kane explained that the bill was drafted by John D. Ellis, City Solicitor of Cincinnati, and has the cosponsorship of municipal authorities of Cleveland, Columbus, Dayton and Akron.





LINEMEN'S NIGHTMARE—New England Power System's *Contact* published these pictures of the extraordinary icing conditions which it had to contend with in the storm which struck about the first of the year. They were snapped in the Berkshires and visualize graphically the heroic job the linemen were called upon to perform

Washington Engineering Award to Dean Potter

The Washington Award for 1943, one of the nation's highest engineering honors, was conferred upon Andrey A. Potter, dean of engineering at Purdue University and chairman of the National Advisory Committee on Engineering and War Training, February 24 in Chicago. The award cites Dean Potter for "distinguished leadership in engineering education and research and patriotic service in mobilizing technical knowledge for victory in war and peace."

Founded in 1916 by John Watson Alvord, the Washington Award is a reminder that the first president of this country was an engineer. It is administered by a commission representing the nation's five outstanding engineering societies: Western Society of Engineers, American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers and American Institute of Electrical Engineers.

Mr. Potter, this year's Washington Award winner, is dean of engineering and director, engineering experiment station, Purdue University. Born in Vilna, Russia, he came to the United States at the age of 15. In 1903 he graduated from Massachusetts Institute of Technology with a bachelor of science degree.

His career began 40 years ago, in research, with General Electric Co. In 1905 he became assistant professor of mechanical engineering at Kansas State College and professor in 1910. In 1913 he was named dean of engineering and director of the engineering experiment station at Kansas State College, where he remained until 1920, when he accepted his present position at Purdue. Here he organized the research foundation which has carried out extensive basic research in many branches of engineering.

As a consultant Dean Potter has conducted valuable research on steam at high temperature and pressure and in steam power equipment design and has written a number of books on power engineering, thermodynamics and farm motors and more than 300 engineering, educational and scientific papers and articles.

Dean Potter is widely known as an educator and for his contributions to engineering education, as an individual and as chairman of the Engineers' Council for Professional Development, Committee on Engineering Schools. As chairman of the National Advisory Committee on Engineering, Science, Management War Training he aided in developing a sound policy for training and use of engineers in the national emergency.

He is a past-president of the A.S.M.E. the Society for the Promotion of Engineering Education, the Kansas Engineering Society, the Indiana Engineering Society and the A.E.C., as well as a member of the former National Electric Light Association, the National Association of Power Engineers and many other national professional societies.

Dean Potter was given an honorary doctor of engineering degree in 1925 from Kansas State College and in 1936 he received the doctor of science degree from Northwestern University. In 1940 the Lamme Medal was presented to him by the S.P.E.E. for his important contributions to engineering education.

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Republic Must Drop Virginia Subsidiaries

In a corporate simplification order, invoking the "death sentence" provisions of the Holding Company Act, the Securities and Exchange Commission last week ordered the Republic Service Corp. to divest itself of all interest in five Virginia subsidiaries—Page Power Co., Madison Power Co., Massanutten Power Co., Massanutten Water Corp. and Holston River Power Co. The company was also ordered to recapitalize its corporate structure so that its common stock shall have no participation.

The commission left for future determination the question of whether the ten Pennsylvania subsidiaries of Republic constitute an integrated utility system under Section 11 (b) (1) of the act.

Utilities Seen Surpassing Nation's Power Demands

Civilian requirements carried along with vast loads imposed by war industries, C. W. Kellogg, E.E.I. president, tells A.I.E.E. section meeting in Western Massachusetts

Total electrical energy produced by all agencies for public supply in the U. S. in 1942 was 188,850,000,000 kw.-hr. The combined non-coincident demand on these facilities in the highest hour was 36,900,000 kw., or about 10,000,000 kw. less than the combined generating capacity—a margin that had increased by about 1,000,000 kw. during the year. Contrasted with the conditions surrounding many basic materials, there was no rationing of electricity and no shortage of it. This was made in the face of the greatest industrial war effort ever put forth by any country, C. W. Kellogg, president of the Edison Electric Institute, told a joint session of the Engineering Society of Western Massachusetts and the Springfield section of the A.I.E.E. on February 16.

"The breadth of coverage of the electric utility business in this country is well-nigh inconceivable. At the end of '42 it was serving more than 32,250,000 customers with a need nearly as basic as life itself. So great is the number of small users that the industries consumed in '42 only 56 percent of the total energy sold, as against 57.1 percent in 1926 and 1929. On the grand total of power requirements, the effect of the tremendous war activity was merely what would be expected from any business boom. Net growth in installed electric generating capacity in 1942 was 2,585,000 kw., surpassed only by 1925's 4,019,000 kw. in industry history," Mr. Kellogg said.

Approaches to War Power Problem

"The first approach was to study the size and nature of war production items and apply to each the known power required per unit of production. This led to really formidible totals. For a time it was assumed that corresponding new generating capacity would have to be forthcoming. This overlooked the fact that the magnitude of industrial power requirements is necessarily incidental to both raw material and manpower totals. Despite the early emergence in the war preparedness program of a demand far exceeding materials supply, the natural momentum of this great country's economy tended to carry on long after it should have shrunk up to yield to war pressure. This superimposing of the war effort upon the mass of civilian effort gave color to the belief, held by some up to or beyond Pearl Harbor, that war production would of itself require corresponding increases in power production facilities. In September, '41, occurred the maximum increase in industrial energy output, 1,656,000,000 over September, 1940, which was about 1.39 kw.-hr. per dollar of increase in war preparedness expense. In that summer came the Federal Power Commission forecast of power demands by the end of '42, which was 6,673,000 kw., or 20 percent greater than actually occurred.

Industrial Employment No Criterion

"As the war production program proceeded it became clear that the superposition theory of war power on top of civilian power was fallacious. The larger the war outlays the smaller became the increase in energy requirements per dollar increase in such expenditures. Six months after Pearl Harbor the ratio had fallen to one-sixth of what it was a year earlier.

"This was used by some as an index of total power needs, but it did not carry through. The last two years indicate that the relation between peak loads and the number of industrial employees has been constantly diminishing, and it produced an error on the high side for 1942 of at least 6,000,000 kw. At the end of '39 there were 3.06 kw. of peak load per industrial employee. In mid-1940 defense preparation began, with some multiple shift operation, where two or more employees used the same kilowatt. By 1941 the ratio had dropped 2 percent, by 1942 it was 7 percent below 1939, and at the end of 1942 it was down 16 percent, which fully accounts for the 6,000,000 kw. error.

Total Industrial Production Valid Test

"Experience through '42 indicates that electrical energy requirements most closely follow the volume of industrial production. The chain is unbroken for the five-year transition from peace to maximum war effort. Electrical energy requirements for manufacturing are the resultant of industrial activity, which is rigidly limited by available materials. This is a physical limitation independent of peace or war; if war demands increase as they have, they can only be met by a corresponding draft on civilian

POWER ECONOMICS DISCUSSED—Head table group at Springfield, Mass., meeting. L. to r., seated, L. G. Carlton, Springfield Water Registrar, and president Engineering Society of Western Massachusetts; C. W. Kellogg, president Edison Electric Institute; R. R. Habberley, superintendent of distribution Western Massachusetts Electric Co., Springfield; standing, l. to r., J. W. Bennett, assistant chief engineer Western Massachusetts Electric; Isaiah Creaser, Westinghouse Electric, Springfield, chairman Springfield A.I.E.E.; R. W. Lamphere, American Bosch Corp., Springfield; D. A. Bartlett rate engineer Western Massachusetts Electric and secretary E.S.W.M.

activities, accompanied by some greater raw material output. This shift is well illustrated in the transfer of manpower to war work, and in the movement of steel from civilian to war uses. The relative stability of the basic measurements of total national activity, civilian and war combined, in such fields as utilities, manpower, steel and coal is most striking in view of the drastic changes which have occurred in specific industries. Munitions rose 273 percent in 1942!

"Even in as great a war effort as ours the time comes when a peak is reached and the rate of expenditure begins to fall. Construction and tooling of war plants once made do not have to be repeated. Maintenance of munitions stocks is easier after initial build-up. The turning point appeared in November, 1942, and in both December and January the war expenditures were less than in November.

"The maximum power demand measures the ability of the electric utility industry to carry the load. The difference between the rates of growth of energy output and of peaks is due to longer hours of operation, thus producing a higher load factor. In 1942 the load factor of the power industry was 58.4 percent, an all-time high, against a previous maximum of 54.5 percent in both 1929 and 1941. The result was largely out of the hands of the utilities, since they had to carry the load at all times, having no control over individual plant operations.

Looking Into The Future

"The rate of expansion of war outlays is dropping, the monthly increase in the past two months being about 25 percent of what it was in the first ten months after Pearl Harbor. The displacement of civilian activity continues apace. It seems doubtful that 1943's growth in industrial activity if war continues, will equal that of 1942. It would be surprising if electric output or peaks grew as much this year as last. Discontinuance of War Time and dimouts, if general, could conceivably cause greater growth in peaks this year, but, *per contra*, nearly double last year's growth in peak load is represented in new generating capacity scheduled for completion in 1943. As for post-war conditions, even now 17,500,000 persons are employed in war work, with 7,000,000 in the armed forces and 65 percent of the national income being applied to war objectives. This rate of expenditure took two years to build up. It will probably shrink more rapidly than it grew, even if, due to its size and world-wide scope, dissolution of war activity should be more gradual than after World War I. In any event, it will take a quick pick-up indeed in civilian activity to prevent an initial slowdown in business activity.

"The initial severity of the post-war slack period will be measured by the degree of dislocation of the war period. It will be a time to try men's courage, but should be relatively short in the light of future hopes that will illuminate it. These justifiable hopes rest on the huge mass of deferred demands that will have been built up during the war and the tremendous development of the determination and ingenuity of the people which the pressure of war will have generated. Based on its many years of experience, the electric power industry may be relied upon to deliver the power which will be needed in the busy post-war era we clearly visualize following the first difficult period of readjustment."

•

Eastern Oregon Named in FPC Order

The Federal Power Commission last week directed the Eastern Oregon Light & Power Co. to show cause on or before February 20, 1943, why it should not be considered a "public utility" within the meaning of the Federal Power Act, and why it should not adjust its accounts in conformity with joint recommendations of the public utility commissioner of Oregon and the FPC.

The commission's staff established in Account 107 (electric plant adjustments) amounts aggregating $2,099,056. The order directs the company to show cause why it should not dispose of $2,009 in Account 107, according to the staff's recommendations, and prepare an analysis of $2,097,047 for the purpose of determining the proper classification of this amount and submit plans for its disposition.

The FPC said that an office review of the utility's proposed reclassification and original cost studies had been made and certain revisions advocated. The company's revised studies were examined by the Oregon commission and the FPC and, on April 22, 1942, the joint report was submitted to the company with the request that the accounting adjustments be made. After having been granted extensions of time, the FPC said, the utility declined to comply on the grounds that the recommended adjustments were without merit and that the company was not subject to FPC jurisdiction.

The order states that reports to the commission show that approximately 40.5 percent of the net energy requirements of Eastern Oregon's system in the state was supplied from transmission facilities of the Idaho Power Co. and interconnected with transmission facilities of Eastern Oregon . . . and that such transmission is in interstate commerce.

•

Bills Would Create East Tennessee PUD

Creation of an "East Tennessee Utility District" for the purpose of taking over the electric generating and distribution properties of East Tennessee Light & Power Co., a Cities Service Co. subsidiary, was presaged recently with the introduction of bills in the Tennessee Legislature looking to that end.

The measures, introduced by State Senator Hubert Brooks and Representative J. D. Robinson, Jr., provide for taking over the electric properties of the utility in six upper east Tennessee counties—Washington, Sullivan, Carter, Greene, Unicoi and Jackson. The proposed utility district would not affect the city of Kingsport, Tenn., served by Kingsport Utilities, Inc. The bill sets up a board of commissioners in charge of the district and provides for the commissioners electing one of their number president and election of a secretary-treasurer who would not be a member of the board. Commissioners would be elected for a four-year term.

Cities Service Co. is required to divest itself of the East Tennessee Light & Power Co., under the Holding Company Act, in proceedings instituted by the Securities and Exchange Commission.

•

Review Denied on Louisville Charge-off

Louisville Gas & Electric Co. failed recently to obtain a Supreme Court review of an FPC order directing the company to charge against its surplus $601,973 which had been disallowed, as part of the costs of the Ohio Falls hydro-electric project. The company contended that the order, upheld by the Sixth U. S. Circuit Court of Appeals, would "wipe out more than half" of its surplus.

The company claimed $7,829,738 as the actual legitimate original cost of the project. After disallowance orders in 1933 and 1937, the commission directed the company in 1939 to charge the $601,973 against its earned surplus account.

The Circuit Court upheld the 1939 order and refused to review the 1933 and 1937 orders.

Post-War T. & D. Problems Discussed by B. M. Jones

Post-war planning as the transmission and distribution engineer faces it was the major theme at the sessions of the Pennsylvania Electric Association's T. & D. committee in Johnstown, Pa., on February 18 and 19, 1943.

Potential Solutions

Hardly any one present stayed out of the lively discussion of opportunities and uncertainties of the period after B. M. Jones, planning engineer of Duquesne Light Co., had set forth the elements of the problem and, particularly, what the engineer has ready to offer in the form of potential solutions. He admitted the possibility of packaged competition, but, against it, called attention to packaged utility equipment, packaged major appliances and packaged homes to create load and serve it economically. No prediction was hazarded regarding a post-war slump in general business, but there was staring the utility industry in the face the prompt but maybe temporary loss of a considerable portion of the kilowatthours now going into war production, which would shortly be used for peacetime goods.

Spares and reserves will be only partly restored, many "haywire" wartime expediencies will survive or set new practices. Interrupted programs of civil progress will lead to new services in new home areas; the trek to the country is likely to be resumed; household usage is expected to increase sharply, and lighting, heating, melting, air conditioning, refrigeration, smoke elimination will afford added markets, said Jones.

On the engineering side he foresaw considerable retention of wartime loadings and loading records; prefabrications and unit assemblies should have appeal; further improvement of power factor in some areas; increased adoption of 4-kv. overhead network and elevated voltages for distribution, with more resort to 66/4-kv. and similar stepdowns. New methods and new equipment will also be explored and utilized. Accompanying this would be an activity in relaying and reclosure to sustain single-line service and reinforcement of bottlenecks in areal interconnections.

Other Problems Analyzed

In discussion, J. S. Maloy (West Penn) saw the network as the solution to widespread household air conditioning. C. N. Clark, chairman, pointed to decentralization of shopping areas and drive-in markets as creating new distribution requirements. D. R. Pattison of the host utility expressed the belief that voltage regulation should begin at the power house and not the customer.

The other sessions were devoted to similarly lively forums on such topics as manpower, priorities, location of faults on secondaries, splice and clamp heating, reduction of cost in N.E.S.C. guying, and various additional methods of designing to save critical materials.

•

CEOC Annual Meeting to Be Held March 19

Annual meeting of the Council of Electric Operating Companies will be held in the Palmer House, Chicago, on Friday, March 19, President Tom P. Walker announces.

On the agenda is the president's annual report, election of members to the committee of the council and consideration of several changes in the organization's constitution and by-laws.

•

Must Simplify Motor Controller Design

Design simplifications aimed at saving tons of critical metals in the manufacture of motor controllers have been ordered by WPB under Order L-250. After March 1, furthermore, controllers and parts may only be sold to fill orders rated AA-5 or better.

Under the order, buses, connecting straps and terminals must be as small as possible, stainless steel may only be used in an operating part, nonfunctional design is eliminated, no copper, aluminum, chromium, nickel, cadmium or alloy of any of these may be used for non-functional parts, and transformers, circuit fuses, meters and instruments may only be used where they are essential to satisfactory controller operation. The simplest practical design must be followed throughout. Army, Navy and Maritime Commission orders are exempt.

To prevent use of control equipment of greater capacity than required on a given job, a schedule of maximum permissible ampere ratings has been established for specified controller uses. Controller manufacturers must meet terms of the order after March 1. After May 14 all units delivered must conform. Savings expected under the order are estimated at 3,000,000 pounds of copper, 150,000 pounds of stainless steel and 12,000 pounds of carbon steel.

•

Permit Purchase of Used Equipment

Restrictions on the purchase of used conveying machinery and mechanical power transmission equipment are eliminated from Order L-193 in a revision issued by WPB. Purpose is to eliminate delays in transfer of essential equipment to war operations. The revised order also exempts specified replacement and repair parts for this type of equipment from the order's restriction on use of critical materials, but with the stipulation that non-metallic parts cannot be replaced with metal ones nor more steel be used in replacement than was in the original part.

MEETINGS

Previously Listed

American Society for Testing Materials—Committee week and spring meeting. Hotel Statler, Buffalo, N. Y., March 1-6. R. E. Hess, assistant secretary, 260 S. Broad St., Philadelphia, Pa.

Southeastern Electric Exchange—Engineering and Operation Section, Henry Grady Hotel, Atlanta, Ga., March 25-26. J. W. Talley, executive secretary, 303 Haas-Howell Bldg., Atlanta, Ga.

Electrochemical Society — Spring meeting, Hotel Roosevelt, Pittsburgh, Pa., April 7-10. Colin G. Fink, secretary, Columbia University, 3000 Broadway, New York, N. Y.

American Institute of Electrical Engineers—Northeastern District, Wendell Hotel, Pittsfield, Mass., April 8-9; Southwestern District, Kansas City, Mo., April 28-30; National Technical Meeting, Cleveland, Ohio, June 21-25. H. H. Henline, national secretary, 33 W. 39th St., New York, N. Y.

Midwest Power Conference — Palmer House, Chicago, Ill., April 8-9. Stanton E. Winston, conference director, Illinois Institute of Technology, Chicago, Ill.

Missouri Association of Public Utilities—Annual business meeting, Elms Hotel, Excelsior Springs, Mo., April 16-17. Jesse Blythe, assistant secretary, 101 West High St., Jefferson City, Mo.

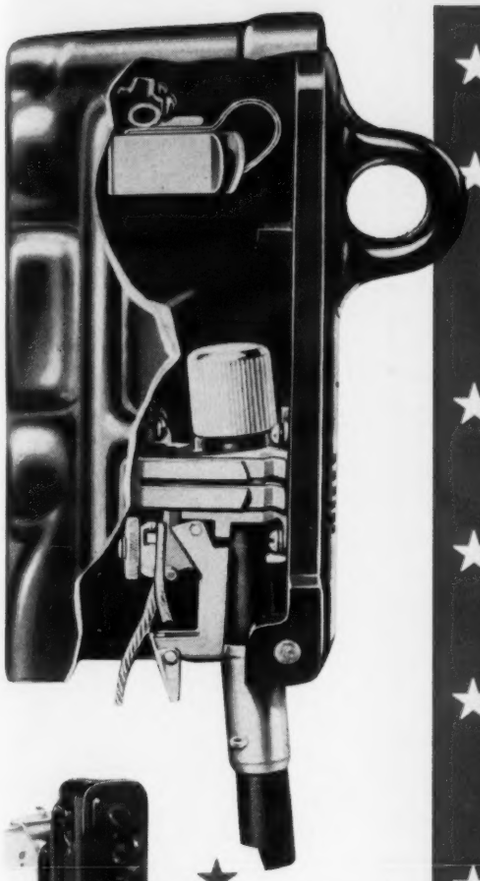
National Electrical Manufacturers Association — Spring meeting, Palmer House, Chicago, Ill., April 20-23. W. J. Donald, managing director, 155 East 44th St., New York, N. Y.

North Central Electrical Industries—Annual all-industry conference, Radison Hotel, Minneapolis, Minn., April 26-27. Wm. A. Ritt, secretary-manager, Foshay Tower, Minneapolis, Minn.

American Society of Mechanical Engineers — Spring meeting, Hotel Black Hawk, Davenport, Iowa, April 26-28; semi-annual meeting, Hotel Biltmore, Los Angeles, Calif., June 14-16. Ernest Hartford, executive assistant secretary, 29 West 39th St., New York, N. Y.

Missouri Valley Electric Association — Annual engineering conference to be held in conjunction with meeting of 7th District American Institute of Electrical Engineers, Continental Hotel, Kansas City, Mo., April 28-30. I. D. Pettegrew, director, 1527 Sharp Bldg., Lincoln, Neb.

HERE ARE THE REASONS WHY YOU FIND THE L-M "PVD" FUSE CUTOUT ON SO MANY LINES



Only the L-M PVD has all these important features that you want in a modern fuse cutout. That is the reason why there are so many PVD's in use today.

FOUR SIZES

5000 V, 50 A	No. C-230016-6
7500/12500 V, 50 A	No. C-230004-6
5000 V, 100 A	No. C-230029-6
7500/12500 V, 100 A	No. C-230005-6

★ **always protected** The PVD door is always closed, internal parts are always protected from the elements.

★ **unfailing operation** Because the operation of the PVD is independent of any door movement and because all working parts are fully protected, the PVD operates as a disconnecting or dropout cutout *at all times*. Cartridges will always be out of circuit when link has blown.

★ **spots trouble** The tell-tale position of the dropped down cartridge is readily visible from any direction and from distance—spots the trouble quickly and saves hunting.

★ **safe, cool contacts** Positive, heavy contacts and large contact surfaces, elimination of intermediate current carrying parts in circuit path, keep operating temperatures of PVD low.

★ **arc quickly cleared** When link blows, a flip-out device pulls the link apart and out of the cartridge. Arc is positively extinguished before any contacts move or separate. A large airgap between contacts prevents any re-establishing of the arc.

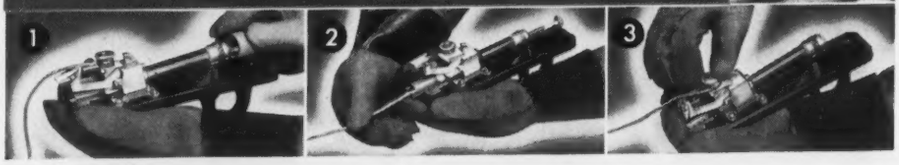
★ **easily, quickly re-fused** Outages are quickly restored. The PVD can be re-fused in one minute—a safe, easy operation right on the pole, even with gloved hands.

1 Bakelite door of PVD lifts off dead hinge in one easy movement. Fuse cartridge cap is easily unscrewed and removal of blown link is a matter of seconds.

2 New fuse link slides into and through PVD cartridge without a hitch. It is only necessary to replace cartridge cap.

3 In a matter of seconds, the new link is pulled over the flip-out device and fastened with the knurled nut.

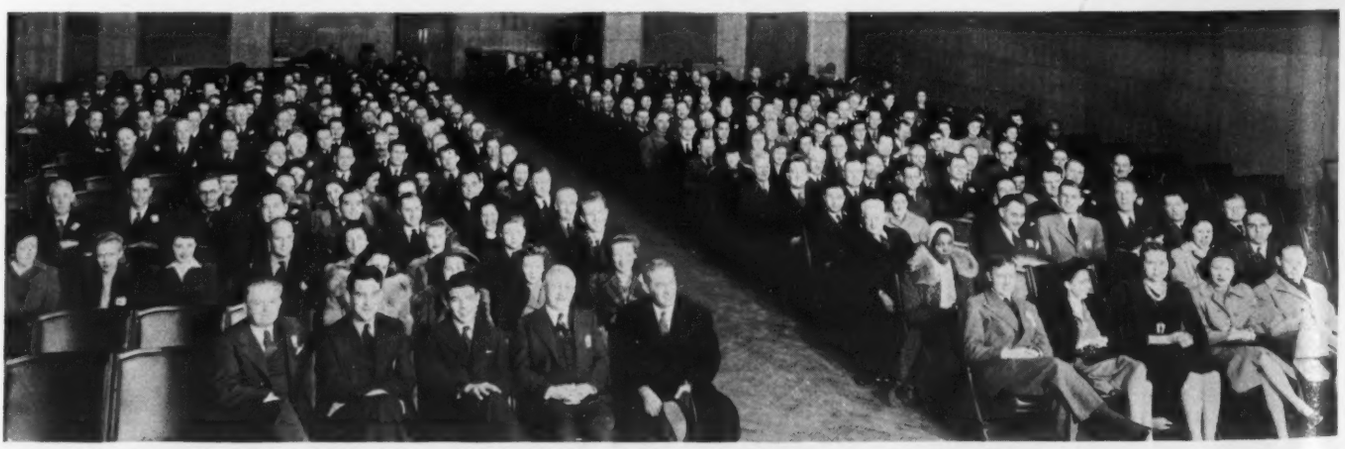
4 Door is hooked onto hinge and swung shut in one continuous, easy movement. Entire re-fusing operation can be done without any tools in sixty seconds.



LINE MATERIAL COMPANY

FORMICA INSPECTION—Formal presentation of the Army-Navy "E" award to Formica Insulation Co., Cincinnati, was the occasion for a military inspection of the laminated plastics made by the company for military aircraft purposes. Left to right: W. J. Donald, managing director, National Electrical Manufacturers Association; Alonzo M. Drake, Army Air Force procurement supervisor for the Central district; D. J. O'Connor, president of Formica; Major Harry T. Shepherd, Army Air Force procurement, Cincinnati, and Major Harry W. Smith, Army Air Force Central district headquarters, Detroit

HONOR CINCINNATI VETERANS—More than 40 years ago Frank H. Schutte and Albert G. Sturdevant, within an hour's time, went to work for the Ohio Electrical Inspection Bureau. On February 9, on the eve of their retirement, 125 representatives of the electrical industry honored them at a dinner. Left to right at the speakers' table: Fred G. Evertz, superintendent, electrical department of the bureau; Frank Schutte; Herman E. Gerboth, president, Electrical Contractors division, Cincinnati Electrical Association; A. G. Sturdevant; Louis G. Schraffenberger, safety director, city of Cincinnati



BIG FAMILY—You've heard plenty from WPB's power division and probably know the directors. Here is a picture, however, of the entire staff which will give you some idea of the number of people required to get out those directives

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1906 BREAKERS CARRY ... Alt
breaker shown below was ... actu
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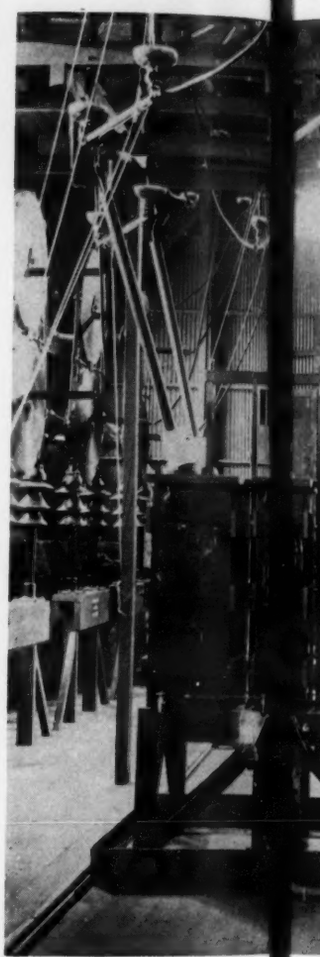
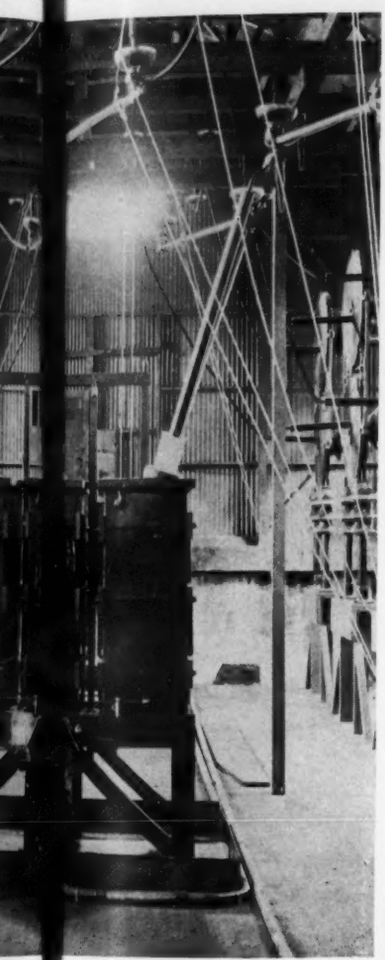
Power Co. The breaker is ... L. a
A similar 1906 breaker is ... n a

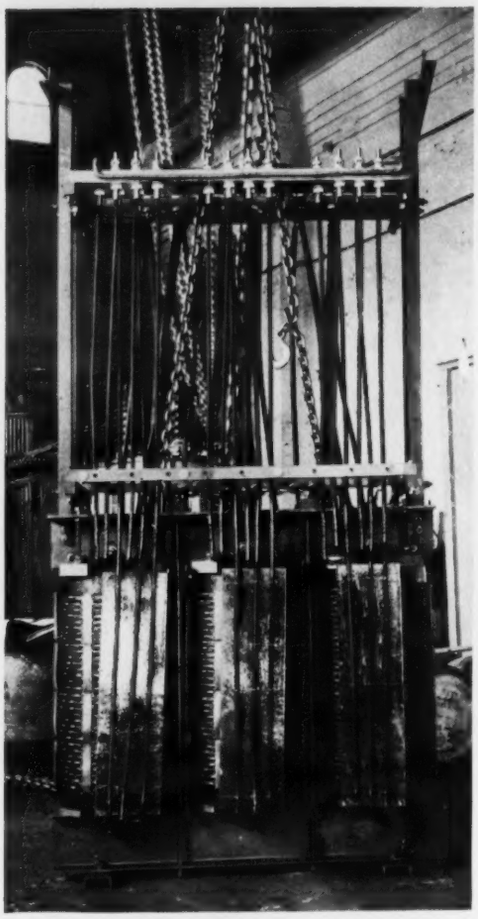


I DUSTRY

N P TURES

RRY (Although the three-pole circuit was m actured by Westinghouse in 1906, t Cam Ferry on the line of the Montana er is L and rated 200-amp., 70,000-volt, er is n active service at Hauser Lake





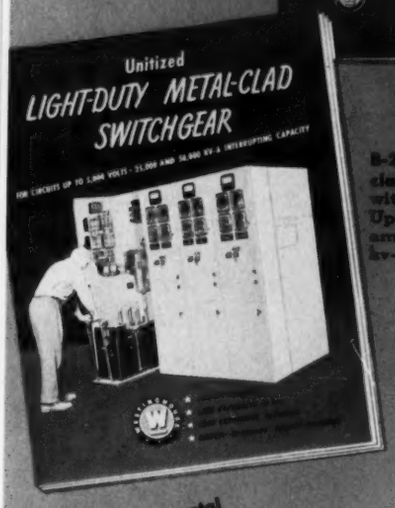
REBUILD TRANSFORMER—The 500-kva., three-phase transformer shown at left was recently rebuilt in the Fremont shops of Ohio Edison Co. Formerly in a substation supplying converters to the abandoned Lakeshore Electric Railway, it was stepped down from 33,000 volts to 465 volts and is shown (right) installed in an oil-pumping station. To redesign for 33,000-2,400 volts, new low-voltage windings were built up. Each leg was made up of three 2,400-volt windings (which can be connected in series for 7,200-volt operation if desired). New terminal boards were made of maple with copper studs insulated by porcelain bushings. Steel mountings of boiler plate were used for the low-voltage bushings. Four were installed in each

TING TROUBLE SHOOTERS—By king lighting bottlenecks in war s, adding more than 100,000 man- in productive capacity, equiva- to the building of an army multi- ed bomber, the two lighting engi- above won solid gold lapel ber-builder" pins for their efforts. W. Arthur, left, vice-president of umers Power Co., presents the pins D. Lyon and R. D. Davey. F. H. of the utility's Muskegon division o a "bomber-builder." J. F. Mayo, ng supervisor for the company, s that his engineers have turned jobs where lighting bottlenecks have been smashed

B-3035—Heavy-duty Metal-clad UNITIZED Switchgear with OIL breakers. 15,000 volts max., 600 to 2000 amps. 100,000 to 500,000 kv-a interrupting capacity.

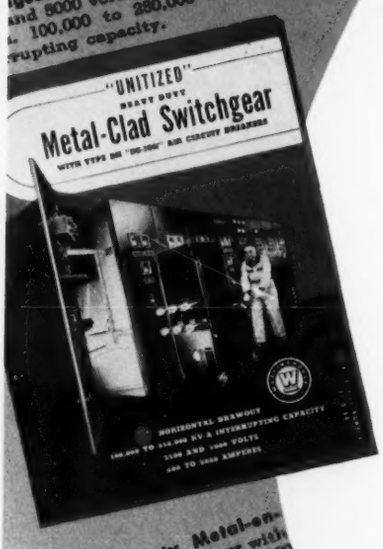
These 4 books

SUPPLY THE ANSWERS TO YOUR SWITCHGEAR REQUIREMENTS



B-2273—Light-duty Metal-clad UNITIZED Switchgear with OIL circuit breakers. Up to 5000 volts, 600 to 2000 amps. 25,000 and 50,000 kv-a interrupting capacity

—Heavy-duty Horizontal ut Metal-clad UNITIZED gear with AIR breakers. nd 5000 volts, 600 to 2000 100,000 to 250,000 kv-a rupting capacity.



-2296—Light-duty Metal-en-closed UNITIZED Switchgear with draw-out type AIR breakers. 600 volts max., 18 to 6000 amps. 15,000 to 100,000 amps. inter-rupting capacity.

select switchgear the UNITIZED way...
save ordering time... delivery time ...installation time!

These four books can save you up to 30% of the time usually required to order, build and install switchgear. They describe Westinghouse UNITIZED switchgear which has standardized switchgear apparatus into simple basic units.

This simplification reduces ordering to two simple steps:

1. Select the units you require by number as described in these books.
2. Draw a single-line circuit diagram and specify capacities.

We build your units from standard plans, with standard parts and materials on a standard production basis. You receive UNITIZED switchgear, completely assembled, wired and tested, ready for quick installation.

UNITIZED switchgear is in step with today's wartime demands. It eliminates the time and expense involved in the planning of detailed specifications for each individual job. Get the books you need from your Westinghouse representative or write Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., Dept. 7-N.

THESE STEPS SAVE UP TO 25% OF ORDERING TIME

1. Instead of consuming time in selecting between variations possible with custom-built switchgear
2. . . . you select one UNITIZED piece for the job
3. . . . by checking a simplified chart and
4. . . . drawing a one-line circuit diagram and specifying capacities.

THESE STEPS SAVE UP TO 20% OF BUILDING TIME

1. We have 100% standardized drawings already made.
2. We proceed to build from standard stock parts and materials.
3. You receive complete switchgear—on schedule.
4. You install quickly as a unit.

J-60518-A

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

UNITIZED SWITCHGEAR

Output Curve In Unseasonal Rise

The power output curve for the week ended February 20 took an unseasonal rise following three weeks of gradual falling off from its January record high. The amount of electrical energy distributed by the light and power industry for the latest week totaled 3,948,749,000 kw.-hr., according to the Edison Electric Institute. This compares with 3,939,708,000 kw.-hr. the week previous and 3,960,000,000 kw.-hr. for the week ended February 6. The figure for the latest week represents a 15.3 percent increase over the corresponding week in 1942.

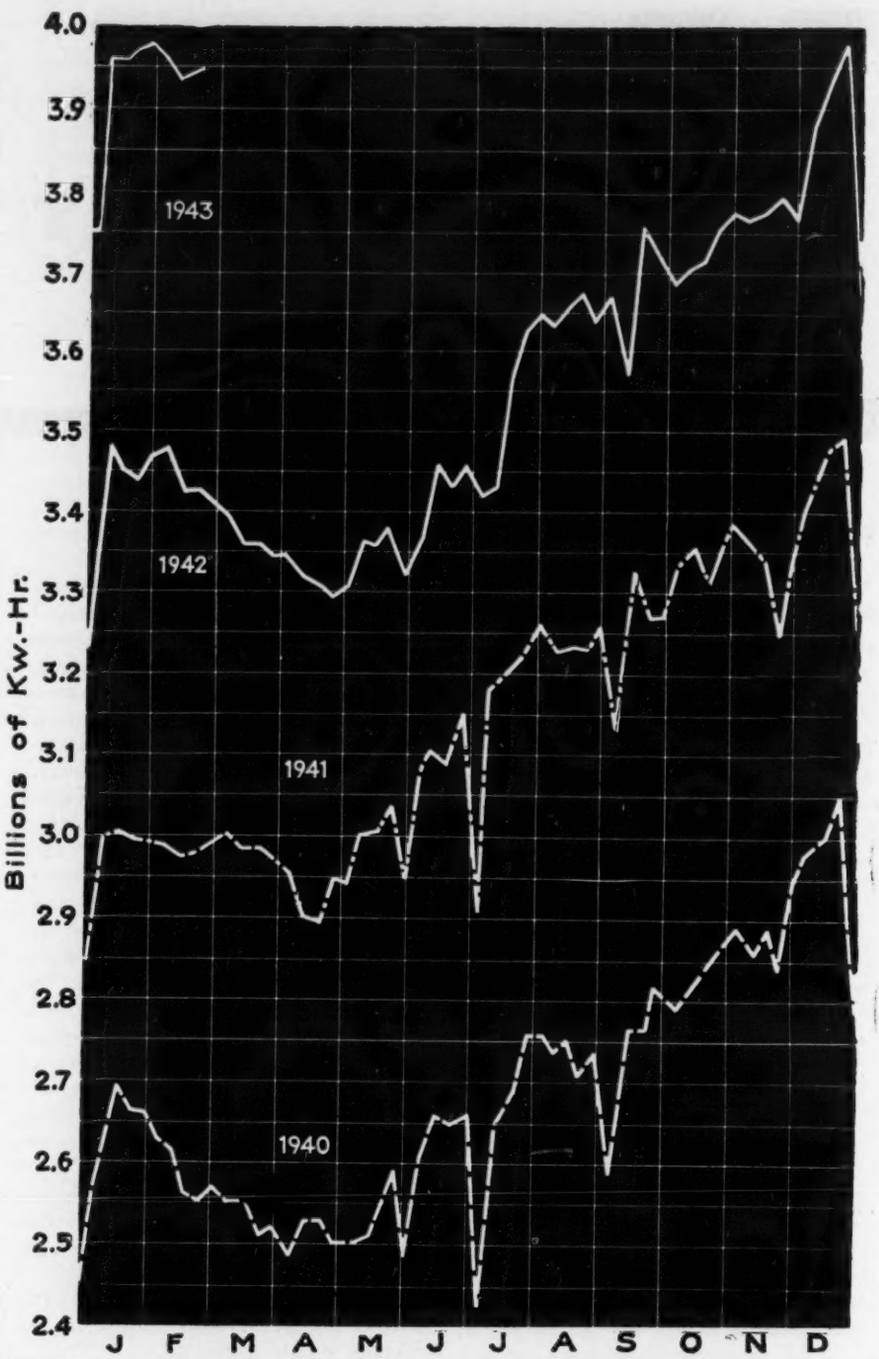
Again the Pacific Coast region led the country in percentage of increase over the '42 figures, the latest week showing a 30.6 gain. The Southern states were second with a 19.7 percent gain and the Rocky Mountain region third with a 14.8 percent increase. New England dropped from a 6.0 percent gain the week previous to a 4.6 percent gain for the February 20 week. Most of the other regions showed slight increases.

Weekly Output, Millions Kw.-Hr.

1943		1942		1941	
Feb. 20	3,949	Feb. 21	3,423	Feb. 22	2,985
Feb. 13	3,940	Feb. 14	3,422	Feb. 15	2,976
Feb. 6	3,960	Feb. 7	3,475	Feb. 8	2,989
Jan. 30	3,977	Jan. 31	3,468	Feb. 1	2,994
Jan. 23	3,974	Jan. 24	3,440	Jan. 25	2,996
Jan. 16	3,952	Jan. 17	3,450	Jan. 18	3,013
Jan. 9	3,952	Jan. 10	3,472	Jan. 11	3,002
Jan. 2	3,780	Jan. 3	3,289	Jan. 4	2,816
1942		1941		1940	
Dec. 26	3,656	Dec. 27	3,234	Dec. 28	2,757
Dec. 19	3,976	Dec. 20	3,495	Dec. 21	3,052

Percent Change from Previous Year

	Week Ending		
	Feb. 20	Feb. 13	Feb. 6
New England	+ 4.6	+ 6.0	+ 3.1
Mid-Atlantic	+ 9.2	+ 8.6	+ 5.1
Central Industrial	+13.1	+12.4	+11.8
West Central	+13.7	+13.0	+15.0
Southern States	+19.7	+19.3	+20.4
Rocky Mountain	+14.8	+14.2	+12.3
Pacific Coast	+30.6	+32.2	+29.9
Total United States...	+15.3	+15.1	+14.0



Stream Flow Above Normal

January Report Notes Floods on Coast, Drought in Maine and Canada

Outstanding features of water conditions during January, 1943, according to the water resources review of the Department of the Interior Geological Survey, in collaboration with the Dominion Water & Power Bureau of Canada, were as follows:

Unusual storms and floods along the Pacific Coast in Oregon, and California and exceptionally large runoff in Nevada.

Continuation of severe winter drought conditions in Nova Scotia, New Brunswick and northern Maine, with adverse affect on hydro-electric power output and curtailment of electric use, especially in northern Maine.

Slight improvement in the streamflow condition in the Rocky Mountain area. Continuation of adverse conditions in Florida.

Stream flow in major power-producing areas was above normal during January in both the United States and Canada, excepting the Maritime Provinces, southeastern Quebec, northern New England and Washington. There was a reduction in the amount of water in major power reservoirs in New England, New York, Wisconsin, Minnesota, Montana and Washington in order to meet power demands. Capacity is thereby provided for snow melt, which in the northeastern U. S. and eastern Canada will probably exceed that during the spring of 1942. Storage for power improved during the month in principal storage reservoirs in California.

In the southeastern power-producing states the amount of water in storage at the end of January averaged 250 percent of that one year ago.

NEWS ABOUT PEOPLE

Philadelphia Electric Assigns New Duties

Announcement has been made of the appointment of George B. Messick as superintendent of the methods division of the Philadelphia Electric Co. Mr. Messick was first employed by the Philadelphia utility in 1915 as a running engineer at Beacon station. Subsequent assignments followed to the Chester and Schuylkill stations, and then he was made assistant superintendent at the Richmond station. He was appointed acting superintendent of generating stations in 1937 and the following year was transferred to the Schuylkill station in the capacity of superintendent. John Finlaw has moved up from assistant superintendent to superintendent to fill the vacancy caused by Mr. Messick's transfer.

William K. Klumpp has been appointed superintendent of the Chester station of the Philadelphia Electric Co., to succeed Everett Palmer, who will retire on May 31. Until then Mr. Palmer will act in an advisory capacity for the superintendent of the station. Mr. Klumpp was first employed by the Philadelphia utility in 1919 as an assistant plant test engineer at the Chester station. In 1927 he was made assistant station superintendent at the Delaware station, and four years ago he was appointed superintendent, the position he held at the time of his recent appointment.

Robert P. Liversidge, who has been superintendent at Barbadoes station, was transferred to the Delaware station to fill the position made vacant by Mr. Klumpp's new assignment. Mr. Liversidge has been a Philadelphia Electric employee since his graduation from Cornell in 1932. Entering the service as a junior engineer, he continued in this training until 1934, when he was transferred to the Richmond station. Later he was assigned to Ardmore as engineering assistant and as electric superintendent at Coatesville.

The vacancy at Barbadoes station was filled by the appointment of Henry T. Bryans to the position of superintendent. While attending the University of Pennsylvania Mr. Bryans worked for Philadelphia Electric and for the Westinghouse Electric & Manufacturing Co. After his graduation he became a full-time employee of Philadelphia Electric, starting as a junior engineer. He continued in that capacity until 1940, when he was made assistant to the superintendent at Schuylkill station.

William J. deMauriac has been appointed assistant superintendent, maintenance division. Mr. deMauriac has spent his entire business career with Philadelphia Electric, having joined that organization following graduation from Pennsylvania State College in 1931 as a mechanical engineer. Julius N. Henter, formerly assistant superintendent at Richmond station, has been transferred to Schuylkill station, in the same capacity. Arthur R. Mandeville, formerly shift superintendent at the Richmond station, has been promoted to assistant superintendent at that station to fill the vacancy caused by the transfer of Mr. Henter.

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▶ W. N. LINDBLAD, assistant chief, bureau of test and inspection, Pacific Gas & Electric Co., Emeryville, Calif., has recently been appointed chief of the test and inspection bureau. He has been associated with Pacific Gas & Electric Co. continuously since 1913, except for a brief period during World War I. From 1913 to 1914 he was employed as a meter tester, and since then has served successively as laboratory assistant, assistant superintendent of the electrical laboratory and assistant chief up to the time of his present promotion.

Bristol Company Makes Executive Appointments

Announcement has been made by the Bristol Co., Waterbury, Conn., of the appointment of L. G. Bean as vice-president in charge of engineering and sales from the position of vice-president and general sales manager, which he has held since 1939.

A graduate of Worcester Polytechnic Institute, Mr. Bean became associated with the Bristol Co. in 1920 as sales engineer. In 1921 he became district manager of the company's Boston district; in 1925 he was made Chicago district manager, and in 1930 he returned to Waterbury as assistant chief engineer of the Bristol Co. In 1935 Mr. Bean was appointed sales manager, subsequently becoming vice-president and general sales manager.

L. G. Bean

Harry E. Beane has been named sales manager of the company. He became identified with the Bristol sales engineering organization in 1920 and five years later was appointed district manager of the company's Birmingham,

Ala., office. In 1930 he became district manager of the Pittsburgh district and in 1936 was promoted to field sales manager to supervise the activities of the company's branch factories at Chicago, Akron and San Francisco and to supervise the work of the company's district managers, sales engineers and service engineers throughout the country. Mr. Beane is a member of the A.I.E.E.

H. E. Beane

E. L. Stilson, who has been associated with the field engineering department of the company with headquarters at Waterbury since 1940, has been appointed assistant sales manager. Mr. Stilson has acquired a broad background of experience since joining the Bristol organization in 1920. He has served in the Rocky Mountain section, on the Pacific Coast, in Cleveland, in charge of the Akron service laboratory, in Birmingham and in St. Louis. In 1935 he was named manager of the Bristol Co. of Canada, Ltd., Toronto. He was made special sales engineer for the Petroleum Industry in 1938.

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▶ Leon A. Duchastel has been appointed manager of the power sales division of the Shawinigan Water & Power Co. Mr. Duchastel is active in the Canadian Electrical Association, having served as chairman of the rural service committee.

▶ Walter H. Ferguson has been appointed manager of retail service, Duquesne Light Co. and Equitable Gas Co., following retirement of Horace Levine after 38 years' service with these companies. Mr. Ferguson has long been active in the Pennsylvania Electric Association, having been a member of the rural committee for many years. A native of New Haven, Conn., Mr. Ferguson has seen 21 years' service with these Pittsburgh utilities.

F. Havenner Elected Head of California Board

Franck Havenner, former Congressman, has been elected as the 1943 president of the California Railroad Commission, succeeding Carl C. Baker. Mr. Havenner has been a member of the commission for two years. He received his original appointment from Governor Olson. He has four more years remaining of his term.

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▶ Eugene Vinet has joined the W. L. Maxson Corp., New York, as special engineering assistant to vice-president F. W. Lutz. Mr. Vinet was formerly connected with the National Electrical Manufacturers Association as executive secretary of the refrigeration division, electric range, electric water heater and counter appliance sections. In his activities at NEMA were included the national promotional campaigns of the Modern Kitchen Bureau and the Commercial Electric Cooking Council. Before joining the NEMA staff in 1940, Mr. Vinet had spent ten years with the Edison General Electric Appliance Co., Inc., Chicago. Earlier in his career he had been identified with the Middle West Utilities Co. of Chicago and with the Shawinigan Water & Power Co., Montreal, Canada.

OBITUARY

F. K. Moss

Lieut.-Commander Frank K. Moss, U.S.N.R., who for 20 years was connected with the General Electric Co. at Nela Park, Cleveland, died on February 14 in the U. S. Naval Hospital at Bethesda, Md. Lieut.-Commander Moss entered the service last September.

Through his outstanding researches in lighting and human vision, Mr. Moss became widely known among eyesight specialists. With Dr. M. Luckiesh, director of lighting research laboratory at Nela Park, Mr. Moss collaborated in extensive studies in lighting and its effects upon eyes, nerves, muscles, heart and brain. These researches led to the creation of the well-known Science of Seeing. He collaborated in writing many of the latest books on light, sight and vision. Mr. Moss was a member of the Illuminating Engineering Society, Optical Society of America, American Society for Advancement of Science, American Academy of Optometry, Franklin Institute and the American Physical Society. He was a fellow of Distinguished Service Foundation, which awarded him a gold medal. He also received the gold medal awarded by the Franklin Institute for outstanding achievement in science. Mr. Moss was born in Denver, Colo., 44 years ago and received his education at the University of Colorado.

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▶ Edward J. Tracey, 36, in charge of station operation for the Southern Berkshire Power & Electric Co., Great Barrington, Mass., lost his life in an accident on February 15. He was a native of Stockbridge, Mass.

▶ Everett S. Stueve, assistant supervisor, line extension division, Cincinnati Gas & Electric Co., died on February 8 in Cincinnati, in his forty-fourth year. Mr. Stueve started with Cincinnati Gas in 1921, as a solicitor in the lighting division. Later he entered the investment department and since 1927 had been in the outside division of electric sales.

▶ John Priestman, prominently identified with the electrical industry in Vancouver, B. C., died recently at his home at North Vancouver. Born in Lancashire, England, Mr. Priestman came to Canada 53 years ago. He was with the B. C. Electric Railway Co. for 46 years and held positions as supervisor of all outside sales crews, and later as merchandising supervisor. He was transferred by the B. C. Electric to the Electrical Service League of British Columbia, and there took charge of all field work, range promotional efforts and special displays, and acted as assistant secretary of the league. Mr. Priestman was also a past-president and one of the founders of the Vancouver Electrical Service League, and was identified with the Vancouver Electric Club and other electrical bodies. He was 61 years old.

▶ Alton D. Adams, 78, for many years engaged in public utility valuation and rate cases in eastern United States, died at Wellesley, Mass., on February 16. He was a native of Biddeford, Me., and attended several universities, being graduated from Harvard with a science degree in 1897. He received an M.A. in 1901 from Harvard and was graduated from Harvard Law School in 1904. In earlier days he was engaged in engineering work for the old Brush, Thomson-Houston, Mather and Jenney companies. He spent ten years as a consulting engineer, and then entered the field of public service engineering and accountancy, retiring about five years ago. Mr. Adams was author of many articles in engineering and economic journals, and of a book on the transmission of electric power.

MANUFACTURING-MARKETS

Supplemental Orders to P-46 Issued

The three supplemental orders to the old WPB order P-46 have been reissued as supplemental orders U-1-A, U-1-B and U-1-C in keeping with the issuance of utilities order No. 1 (ELECTRICAL WORLD, February 20, page 65) by the Office of War Utilities to replace P-46.

No changes are made in the supplemental orders except their designation. U-1-A authorized utilities to make extensions up to 250 feet on direct order of the Army, Navy or Maritime Commission for military facilities if the materials cost does not exceed $500 for overhead construction or $1,500 for underground construction. U-1-B authorizes extensions to serve electric or gas ranges under specified limitations. U-1-C is the "whisker" farm extension authorized (ELECTRICAL WORLD, January 16, page 5, and February 20, page 59).

Copies of order U-1 and its supplements were mailed to all utilities by OWU this week.

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G.E.'s Walter Brown Wins Fresh Honors

Walter W. Brown, 67-year-old General Electric Co. engineer who was the 1915 Gold Medal of Award winner at the Panama-Pacific Exposition and 1926 winner of the Charles A. Coffin Award, has been given the Individual Production Merit award of the War Production Drive Headquarters. Brown is the only winner of this top citation among 84 war workers from 33 plants in 19 states selected for national honors for suggestions that save man-hours, critical materials or otherwise improve and increase production.

Brown's winning suggestion led to the saving of considerable quantities of critical material in manufacture of Army searchlights by G. E. Details, for military reasons, are not disclosed. Of his previous awards, the Panama-Pacific citation was for outstanding contributions to the development of diesel engines and the Coffin honor for development work in connection with cold pressing and fabrication of controller parts.

A native of Augusta, Me., Brown has been with General Electric for more than 30 years.

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EIGHTH "E"—The East Springfield, Mass., plant of Westinghouse Electric & Mfg. Co., which formerly made electrical appliances, recently became the eighth Westinghouse plant to receive the Army-Navy "E" award. In the picture Brig.-Gen. A. G. Gillespie, commandant of the Watervliet Arsenal, presents the pennant to William O. Lippman, left, works manager, and Leo Benoit, employee representative

Manufacturers Make Sales Appointments

Announcement of new sales assignments has recently been made by the following manufacturers:

Trumbull Electric Mfg. Co., Plainville, Conn., has transferred William A. Edwards from the Boston territory, where he has been a field representative for the past two years, to take up his duties as district manager of a newly defined central southwest district, with headquarters at 3560 Broadway, Kansas City. For almost 15 years Mr. Edwards was connected with the sales department at the Plainville factory.

Handy & Harman, New York, announce the opening of a Los Angeles office. H. A. Folgner, for many years connected with the company's brazing engineering division in New York, has charge of the new office, located in the Bendix Building, 1206 South Maple Av., Los Angeles.

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Electronics to Be Topic at Machine Tool Forum

Application of electronics to metal working tools will be explained by electronic engineers as one of the features

of the 1943 Westinghouse Machine Tool Forum, to be held at the company's East Pittsburgh, Pa., works, April 6 and 7. This will be the eighth annual forum sponsored by the Westinghouse Electric & Manufacturing Co.

In addition to the forum on electronics application, there will be at least six other major papers on current problems presented before the forum.

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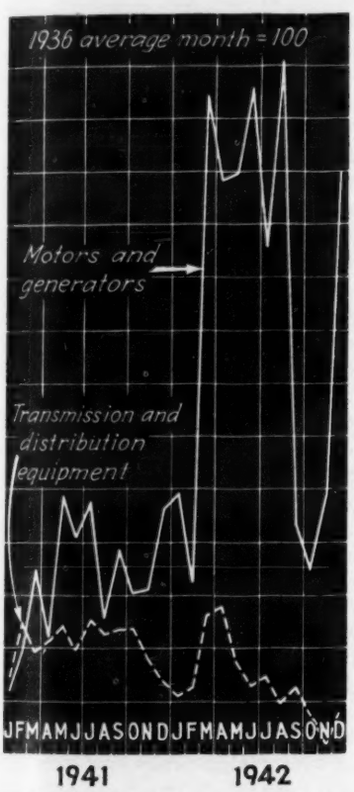
Motors, Generators Orders Soar

New orders received for motors and generators during the month of December advanced sharply, according to the index compiled by the National Electrical Manufacturers Association, which reached the 700 mark, comparing with 394 in November, an increase of 78 percent. In December, 1941, this index stood at 381.



NEMA INDEX, value of orders received

The index covering new orders received for transmission and distribution equipment during the month of December advanced to 191 from 160 (revised) in November. This compares with 219 in December, 1941, a decrease of 13 percent.

The revised October figure for transmission and distribution equipment orders is 169.

Field Reports on Business

Reports from industrial areas continue favorable. Considerable electrical business is resulting from shipyard activity. Electrical wholesalers report improved inventory conditions. The consumer buying rush throughout the country is the outstanding feature of business activity as retail volume scored large increases. Buying was heaviest in clothing lines.

NEW ENGLAND

Important Defense Plant Corp. contracts have been awarded which should spur sales of industrial electrical equipment. Saco-Lowell Shops, Boston, has received an allotment of approximately $350,000 to provide additional machinery, and Hershey Metal Products Co., Derby, Conn., has received $410,000 for the purchase of additional equipment. Norton Co., Worcester, will construct steam turbines at its Greendale plant at the request of the Navy. Franklin Foundry Co., Boston, has taken over the A. D. Weymouth shops, Fitchburg, and will manufacture machinery for the plastic industry.

New England machine tool builders are receiving fair-sized contracts which will insure continuance of operations at a high level for some time. In the neighborhood of $3,000,000 worth of electric cable was quoted a short time ago by manufacturers.

Bidding on electrical equipment needed by various branches of the government is stepping up in volumes and in ranges of applications. Quotations have been submitted on 1,200 capacitors by Aerovox Corp., New Bedford, Mass., 60,000 solderless wire terminals by Geo. H. Wahn Co., Boston, an unspecified quantity of wirewound resistors, electrical insulating materials, and magnet wire, by Sprague Specialties Co., North Adams, Mass. Safety switches are in demand; one group of 150 was priced last week, also 1,000 toggle type switches. Radio manufacturers are quoting on voltage stabilizers; electric heaters and water stills are in demand.

CHICAGO

Fifty-two Chicago firms received 107 war orders aggregating in excess of $37,210,000 during the week ended February 18. Of this, $34,360,000 was represented in orders for war construction work, $2,850,000 for manufactured goods. Among orders for war construction work was one for $23,000,000 for expansion of the DPC-financed electric alloy steel plant of Republic Steel. Orders for electrical equipment were received by Clement Manufacturing Co., electric blowers; Duro Metal Products Co., portable electric drills, and Skilsaw, Inc., portable electric saws.

Electrical wholesalers groups report inventory conditions improved. Supplies which wholesalers are allowed to stock at 60-day levels under recent WPB order PD-1X are coming in and inventories of wire and conduit are approaching the permitted 60-day level.

Electrical contracting sources reveal a growing stringency on motor repair parts with deliveries on the average 30 days behind normal. On equipment returned to manufacturers for repair, small manufacturers are taking six to ten weeks to return; larger manufacturers ten-sixteen weeks, one source stated. One large manufacturer guarantees that the cost of repair will not exceed the cost of a new machine.

Hectic buying in the retail field, evident over the country during the week of February 13, drove department store sales in Chicago up 45 percent over the same week a year ago.

NEW YORK

Refrigerator manufacturers are scheduled to start an educational campaign at an early date with a view to combating the idea, prevalent among consumers, that postwar products will contain startling innovations. The activities of feature writers, waxing lyrical over plastics and other new materials and processes, have caused the false hopes to rise, the manufacturers say, and in almost no cases have they been responsible for starting the rumors. Greatly improved products will no doubt be available in the future, they say, but the immediate post-war period will see tooling up to produce the refrigerators and other appliances of the 1942 vintage.

Department store sales for the week ended February 13 were up 45 percent over the corresponding week in 1942, following a gain of 19 percent the week previous, according to the Federal Reserve Board. Prospects of rationing of many lines of consumer's goods was chiefly responsible for the abnormal volume of business. In Boston the rise was 30 percent, in New York 22, in Philadelphia 23 and in Richmond 43 percent. Inventories in the New York area were up 11 percent in January.

Civil engineering construction volume for the latest week amounted to $98,861,000, 39 percent over the total for the preceding week. This compares with $102,218,000 for the holiday-shortened week in 1942.

PACIFIC COAST

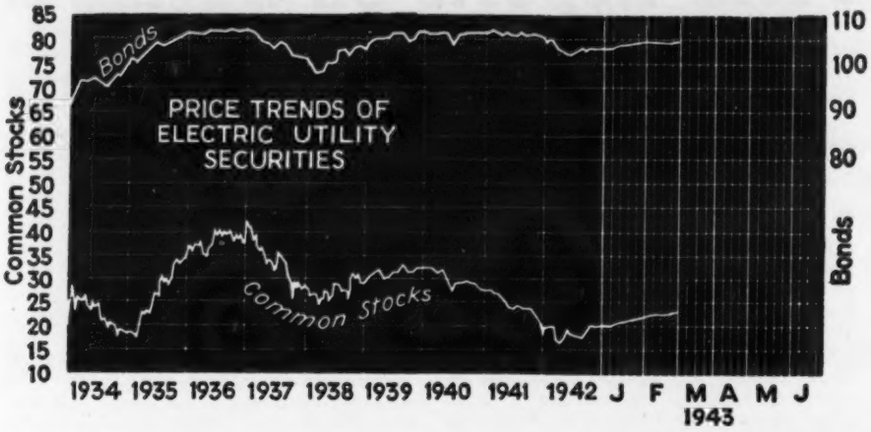
Shipyard material is setting the pace for Pacific Coast electrical business, there being, for example, 23 yards in the San Francisco Bay area and 42 boat-building establishments in the Northwest. A group of electrical warehouses is being added to Kaiser's Vancouver yard, adjacent to which 1,500 new dwelling units, costing $2,706,415, are being built.

WPB has approved $4,300,000 for access roads to mines in western states, and a California appropriation of $1,000,000 has been suggested for exploration and development of critical minerals. New mines for zinc, lead and tungsten are being opened in Idaho and Arizona, all this being typical of the new industrial West.

Other industrial developments include a Standard Oil plant in California, costing $6,250,000, for butadiene manufacture of synthetic rubber; National Biscuit Co.'s $3,000,000 flour mill at Cheney, Wash.; Pacific Tube Co.'s $1,500,000 mill at Bandini, and starch and dehydrating plants in Colfax, Wash., and Lewiston, Idaho.

Utility orders include 75- and 150-kva. transformers and a 2,000-amp. circuit breaker for Los Angeles and reactors and disconnect switches for Bonneville. Inquiries and orders for the government services have decreased, possibly as a reaction to recent hectic purchasing to anticipate the CMP.

Utility Stock and Bond Prices Shoot Upward



During the past week electric utility securities, in line with the general market trend, reached highest points since late 1941. "Electrical World" stock index advanced to 23.2 from 22.8; last year, 19.4. Bonds went to 104.9 from 104.6; last year, 104.4

National Files Dissolution Amendment

In compliance with an SEC order, the National Power & Light Co., an Electric Bond & Share Co. subsidiary, recently filed amendments to its plan of dissolution. The proposals provide for the further retirement of securities of the Pennsylvania Power & Light Co. and the acquisition by that company of the steam-electric generating plant of Lehigh Valley Transit Co., another National subsidiary, for $1,900,000.

Since 1939, National said, Pennsylvania Power & Light has paid off $3,800,000 of debt and increased its property account by $18,000,000. Over the next five years it is planned to retire an additional $15,000,000 of its securities and increase its property in like amount, thus increasing by the end of 1947 the excess of Pennsylvania's plant account over its debt and preferred stock by an aggregate of $51,800,000.

In addition to buying the Lehigh Valley generating plant at Allentown, Pennsylvania plans to purchase 15,469 shares of its own $7 preferred stock which Lehigh Valley Transit owns.

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Board to Probe Alabama Utility Rate System

Alabama Public Service Commission has voted to cite electric and gas utilities in the state to show cause why they should not abolish the present 10 percent discount system on bills paid by the due date and hereafter charge only the net amount regardless of date collected.

The commission also authorized an investigation to "determine the classification of all customers—with the end that the commission will be able to develop a simple system of rates with reasonable and adequate revenue for these utilities."

Another action taken by the commission was to abolish the position of chief public service engineer.

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SEC Acts Against General Gas Unit

The Securities and Exchange Commission has brought "death sentence" proceedings, under Section 11 (b) (2) of the Holding Company Act, involving corporate simplification, against the Georgia Power & Light Co. and General Gas & Electric Co., the parent concern, both members of the Associated Gas & Electric Co. system. The SEC set March 9 for a hearing to determine, among other things, whether voting power is inequitably distributed among the security holders of Georgia Power & Light and what action should be taken by the company to restate its fixed property account, retirement reserve, capital accounts and other accounts to segregate or dispose of "write-ups."

The commission also ordered that these proceedings be consolidated with hearings on a reorganization plan submitted last December 4 by the two companies whereby three other General Gas subsidiaries—Florida Public Service Co., Sanford Gas Co. and the Santa Fe Land Co.—would be merged into the Florida Power Corp., following which Florida Power Corp. would acquire the stock of Georgia Power & Light Co. The latter proposal has already been approved by the Georgia Public Service Commission.

The commission ordered the companies to file by March 1 answers to the allegations contained in the simplification order.

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Duke Power Wins Jersey Tax Suit

The New Jersey Supreme Court ruled recently that intangible assets of a utility chartered by the state, but not doing business there, is not subject to taxation upon intangibles in another state where taxes have been assessed upon them and have been paid.

The decision was rendered in the case of the Duke Power Co., operating in the Carolinas, but maintaining a registered office in Hillsborough Township, Somerset County, during 1939. The utility's intangible property assessment, such as stocks, bonds and money in banks, was set at $11,604,815 by the State Board of Tax Appeals, after Duke Power had appealed an assessment of $21,953,125, fixed by the Somerset County tax board. Attorney for the township, Joseph Weintraub, had urged the Supreme Court to raise the figure to $20,756,096. The office of the company had been moved to Jersey City subsequently and then to Flemington, N. J.

Justice Joseph L. Bodine asserted that the "proofs clearly demonstrate that taxes had been assessed and been paid in North Carolina upon the property included in the assessment by the state board." The court also agreed with the appellant that the proper assessment procedure had not been followed. Company counsel had contended that the 1939 assessment was not entered by the Somerset County Tax Board until November 22, 1940, whereas, under the law, it should have been made months before that date.

Utility Reports

	Net Income 1943	1942
*Detroit Edison	$7,897,269	$12,264,159
*Pub. Serv. Corp. of N. J. and subs.	†16,145,413	†20,884,865
	1942	1941
‡Birmingham Electric	¶1,243,467	908,849
‡Calif. Elec. Power and sub.	¶895,579	695,023
‡Montana Power and subs.	¶3,298,939	3,515,302
‡Nebraska Power	¶1,539,609	1,573,243
‡Northwestern Elec.	¶668,744	513,735
‡Pacific Pwr. & Lt.	¶939,063	740,107
‡Pennsylvania Wtr. & Pwr.	2,225,980	2,110,690
‡South Carolina Elec. & Gas	902,890	650,832

*Twelve months ended January 31.
†Restated to reflect new classification of accounts adopted Jan. 1, 1943.
‡Twelve months ended December 31.
¶Preliminary.

Bonneville-P.G.E. Contract Deadlocked

Pepco Reorganization Hearing in Progress Before SEC

Paul J. Raver, Bonneville power administrator, has flatly refused to consider a contract, offered by the Portland General Electric Co., for 50,000 kw. of firm power now being supplied the utility on a day-to-day basis by Bonneville. The refusal was contained in a letter to Franklin T. Griffith, chairman of Portland General Electric Co.

The current deadlock arose, according to James H. Polhemus, president of P.G.E., when the original contract between the utility and Bonneville, which called for 60,000 kw., terminated. Bonneville refused to renew the contract unless granted a 20-year option on P.G.E. property—at Bonneville's price. This "string" to the contract, Mr. Polhemus said, was an arbitrary action outside the administration's authority. The present 24-hour basis, he said, holds the constant threat that Bonneville power might be cut off.

Raver Insists on Option

The utility's demand for a new contract for Bonneville power was characterized by Dr. Raver as "a flagrant attempt to appropriate the people's natural resources—the entire firm output of the Bonneville project—for private profit, on your own terms."

"While the initial prime power demand in your proposed contract is only 50,000 kw.," Raver said, "it is clear that within a 20-year period, if normal load growth continues, your company's firm power requirements will equal and probably exceed all the firm power available. . . ." Further in his letter of refusal, Raver insisted on Bonneville being given an option on the Woodburn and Clark county properties of P.G.E. as a condition of extending the contract. He further charged that the Portland utility was realizing excess profits on Bonneville power in the amount of $700,000 per annum and that rates had not been reduced to eliminate these excess profits.

Commenting on the Raver letter, Ormond R. Bean, state public utilities commissioner, said that a formal complaint is being prepared to force the utility to reduce its rates. Hearings would have to be held first, however, he indicated, and these would not be called until the reorganization plan hearing of the parent company, Portland Electric Power Co., now in progress before the Securities and Exchange Commission, was completed.

Sales Opportunities

LOUISIANA—Louisiana Public Utilities Co., Lafayette, plans extensions and improvements in transmission and distributing lines, including additional service facilities. This is part of 1943 expansion program covering electric, gas and water properties.

NEW JERSEY—General Motors Corp., New York, N. Y., plans expansion in plants of Eastern Aircraft Division, New Jersey, for production for government, including new buildings and installation of machinery and electrical equipment. Cost about $730,000, with financing by Defense Plant Corp. Also, under another agreement with last noted federal agency, will make extensions in aircraft plants in New Jersey, New York and Maryland, including new machinery and electrical equipment for larger output. Cost about $1,290,000, with financing through same source.

OHIO—War Department has authorized expansion in air force base comprising additional hangars, shops, warehouses and other industrial buildings, with installation of machinery and electrical equipment. Also will make extensions in electrical distribution system and substation facilities. Entire project will cost about $1,000,000 and will be supervised by U. S. District Engineer Office, Wright Field, Dayton. Proposed to carry out work at early date.

KENTUCKY—Civil Aeronautics Authority, 608 South Dearborn St., Chicago, Ill., will close bids on or about March 8 for new airport, including hangars, shops, administration building and other structures, with electrical equipment installation. Also, distribution lines for light and power service, power substation, airport lighting installation, control house and miscellaneous accessory work. Entire project will cost close to $2,000,000.

NEW YORK—Curtiss-Wright Corp., Rockefeller Plaza, New York, plans expansion in aircraft plants for production for government, including new buildings and installation of machinery and electrical equipment. Cost about $4,000,000, with financing by Defense Plant Corp.

MARYLAND — Consolidated Gas, Electric Light & Power Co., Baltimore, plans rebuilding of power substation recently damaged by fire. No official estimate of loss announced.

CALIFORNIA—War Department has authorized expansion in air force base, including new hangars, shops, warehouses and other industrial structures, with installation of machinery and electrical equipment. Also, will make additions to electrical distribution lines and power substation facilities, and lighting system. Entire project will cost about $1,000,000, and will be supervised by U. S. District Engineer Office, Los Angeles.

CALIFORNIA—Pacific Gas & Electric Co., San Francisco, has approved plans for new control and switching station and will proceed with work at once.

CALIFORNIA—Standard Oil Co. of California, 225 Bush St., San Francisco, has plans maturing for new plant for production of butadiene, at one of oil refineries, comprising large group of one and multistory structures, with processing machinery and electrical equipment. Entire project will cost over $6,000,000. It is understood that financing will be provided by Defense Plant Corp. Work will begin soon. Bechtel-McCone-Parsons Corp., 601 West Fifth St., Los Angeles, is consulting engineer and will supervise erection.

TENNESSEE—Town Council, Clarksville, plans installation of electrically operated pumping machinery, with controls and accessory equipment, in connection with new waterworks station and distribution system. Entire project is estimated to cost about $300,000. Proposed to begin work soon.

PENNSYLVANIA — SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, manufacturer of ball and roller bearings, etc., plans expansion in plant for production for government, including new buildings and installation of machinery and electrical equipment. Cost close to $3,000,000, with financing by Defense Plant Corp. Work will be carried out at early date.

OHIO—War Department has approved plans for expansion in air force base, including new hangars, shops, warehouses and other industrial buildings, with machinery and electrical equipment. Also will make extensions in electrical distribution lines for light and power service, lighting system, power substation facilities, etc. Entire program will cost approximately $5,000,000, and will be supervised by U. S. District Engineer Office, Wright Field, Dayton.

NEBRASKA—War Department has completed plans for series of about 125 buildings for an occupational training center at air force base. Machinery and electrical equipment will be installed in different structures, with light and power system. Extensions will be made in electrical distribution lines. Bids are being asked for building erection and work will begin soon. No official estimate of cost announced. Royce J. Tipton, First National Bank Building, Denver, Colo., is architect and engineer. Project will be supervised by U. S. District Engineer Office, Grand Island.

TEXAS—Navy Department has approved plans for new airfield, comprising hangars, shops, warehouses and other industrial structures, with machinery and electrical equipment. Also barracks, administration building and miscellaneous structures. An electrical distribution system will be installed, with power substation, and complete lighting system for airfield service, including control house and other facilities. Entire project will cost about $3,000,000, and will be carried out soon.

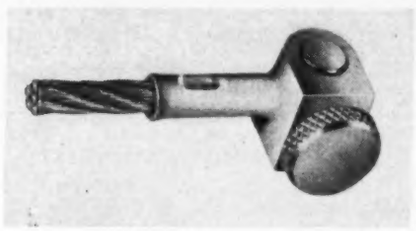
MISSOURI—War Department has authorized expansion in army general hospital, including additional buildings, with complete electrical system and facilities, including extensions in power plant. Cost estimated over $1,000,000. Project is scheduled to begin soon and will be supervised by U. S. District Engineer Office, Kansas City.

WASHINGTON—National Biscuit Co., 449 West 14th St., New York, N. Y., plans expansion in flour mill at Cheney, recently acquired, with new buildings and installation of machinery and electrical equipment. Cost estimated over $1,500,000. Proposed to begin work at early date.

NEW EQUIPMENT

Connector

Developed for use in joining flexible leads to filament studs of large electronic tubes, new indent-type electronic tube stud



"Hystud" electronic tube stud connector. **Burndy Engineeering Co.**, 459 E. 133d St., New York, N. Y.

connector is assembled to the stud by means of a knurled thumb screw. It is installed on the flexible lead by means of the Burndy "Hypress."

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Coating

"No-Spat" liquid coating. **Midland Paint & Varnish Co.**, Cleveland, Ohio.

Field tested under a wide variety of service conditions, new liquid coating is said to prevent adhesion of welding spatter. After welding, the spatter may be wiped away, with no chipping or grinding necessary. Welding may be done immediately after coating has been applied.

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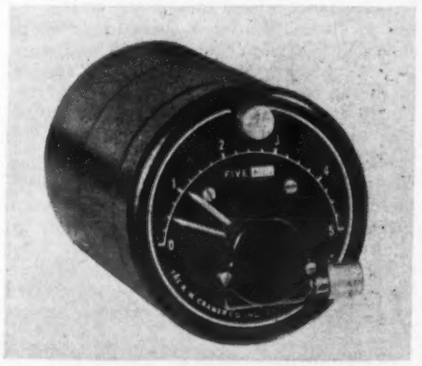
Reset Timers

New synchronous motor-driven reset timers repeat their time cycle upon manual operation of a built-in start button and they indicate at a glance, by means of a progress indicator, the expired and unexpired time cycle as well as the setting time. "RS4" has a double-throw switch and opens or closes the circuit, depending upon the choice of circuit, and starts by pressing, then releasing, the start button, which resets the timer. "RS5" is mechanically held in a neutral position when the button is depressed and the timing cycle is started by pulling the start button outwardly. Both models enclosed in black bakelite case for flush panel mounting.



"RS4," illustrated, and "RS5" synchronous motor-driven timers; available for time ranges up to five hours or longer; operate a single-pole, double-throw switch with a capacity of 10 amp. at 115 volts or 5 amp. at 220 volts a.c. non-inductive load. **R. W. Cramer Co.**, Centerbrook, Conn.

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Control

New control appliance for a.c. lines is designed for use in machine shops, war plants, etc. Output is used to drive any shunt d.c. motor, which may be operated at any speed from zero to the maximum ability of the individual motor, it is claimed.

"Eleco RPM" control unit; operates from 220- and 440-volt, three phase, a.c. lines. **Electron Equipment Corp.**, Palm Springs, Calif.

Fingertip control changes speed instantly, or the speed may be preset, and restarted at that same speed repeatedly. Changes in load do not affect the speed appreciably, it is said, regardless of the speed selected.

BUYING ELECTRICAL EQUIPMENT?— McGraw-Hill's *Electrical Buyers Reference* is a convenient place to look first for manufacturers' product data, names and addresses.

Car Spotter

Spotter for cars and trucks is mounted on channel iron frame and so balanced that one man can lift the one end and roll the unit to any desired location. Frame

Portable motorized car spotter; size No. 5 has 5-hp. motor, rope pull of 5,000 lb. and will pull one to three cars or a gross load of 165 tons on straight level track; size No. 10 has 10-hp. motor, rope pull of 10,000 lb. and will pull three to six cars or a gross load of 335 tons. **Link-Belt Co.**, 2410 West 18th St., Chicago, Ill.

can be anchored by a chain. Unit with motor-starting equipment can be plugged into nearest electric power outlet.

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Floodlight Projector

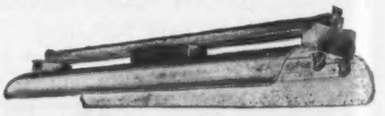
Type "RDS" floodlighting projector; furnished in two models: "RDS 14" for 300- and 500-watt general service lamps or 500-watt floodlighting lamps, and "RDS 18" for 750- and 1,000-watt general service lamps or 1,000-watt floodlighting lamps. **Benjamin Electric Mfg. Co.**, Des Plaines, Ill.

For protective lighting and lighting of yards, areaways and other outdoor work places, new projectors replace type "RD" units. Parts formerly made of non-ferrous metals are now furnished in steel or cast-iron treated with rust proofing. Features include adjustability of the beam spread over the entire beam range from narrow to wide, making it possible to fit the beam to the requirements of the installation and a focussing mechanism to permit placement of light where needed. Units are furnished with vertical and horizontal stops which are said to reposition projector automatically, eliminating need for resetting after projector has been turned or tilted for cleaning or inspection.

•

Fluorescent Unit

Lighting fixture can be surface-chain or pipe mounted individually or in continuous runs. Wire way of rigid metal construction may be completely exposed for installation or maintenance. Ballast is inverted and exposed for longer life and cooler operation, it is claimed. Reflectors are formed masonite. Louvres of masonite and klasium white enameled may be added where shielding is desired.



"40-A Series" fluorescent lighting unit; for two, three and four 40-watt and two 100-watt lamps. **Lighting Products, Inc.**, Highland Park, Ill.

Electrical failure somewhere in your plant may be more imminent than you think . . . .

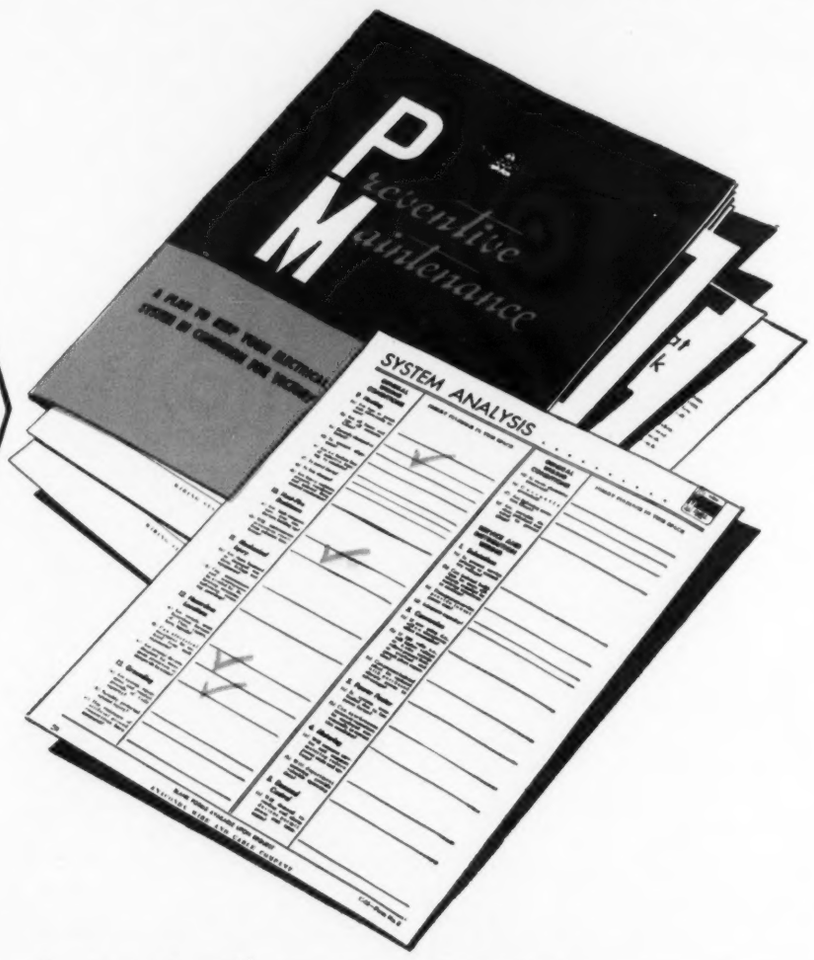
CHECK UP!

WARTIME restrictions make copper products hard to get—this includes electrical wire and cable. It will pay you to protect what you have.

Anaconda's Preventive Maintenance Plan will help you check to see that cables in your plant are not being abused . . . to detect electrical weaknesses that can be corrected.

If you follow this free plan you not only help yourself, but more important, you help the war effort. This manual provides a practical automatic method for complete analysis of circuits and equipment...uncovers potential weaknesses . . . methods for correcting them . . . with charts to enable quick periodic check-ups. 43228

NOTE: Through this Preventive Maintenance Plan you may uncover the evidence necessary to obtain an "emergency repair priority." This is explained fully in the plan book.



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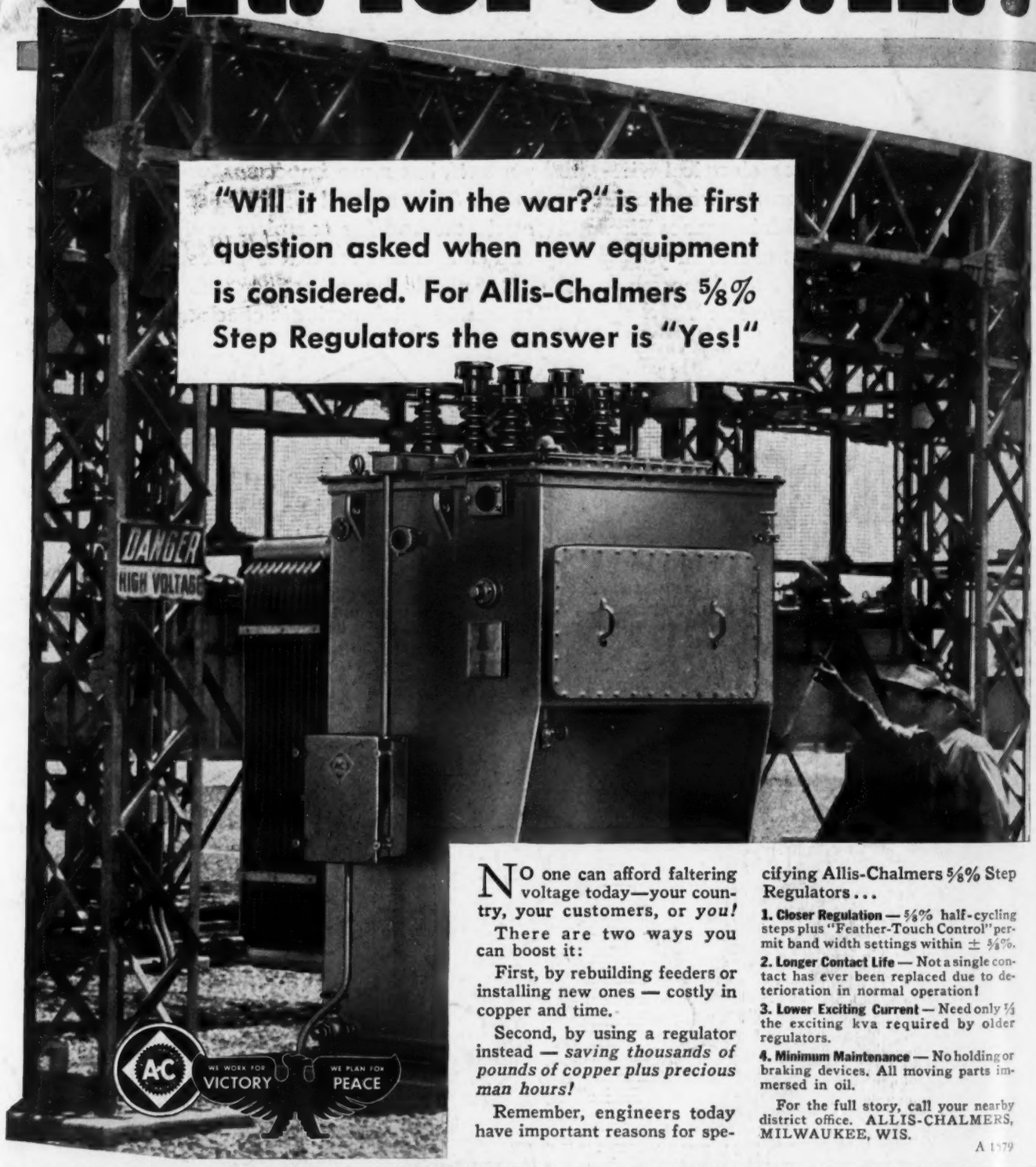

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3. Lower Exciting Current — Need only 1/3 the exciting kva required by older regulators.

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